TOSHIBA

FILE NO. 020-200507

DRAFT

SERVICE MANUAL

Projection Monitor

51HC85
57HC85
65HC15
65HC85

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CIRCUIT DIAGRAM

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.

   Refer to table-1 for high voltage (A), (B).
   (See SETTING & ADJUSTING DATA on page 20)

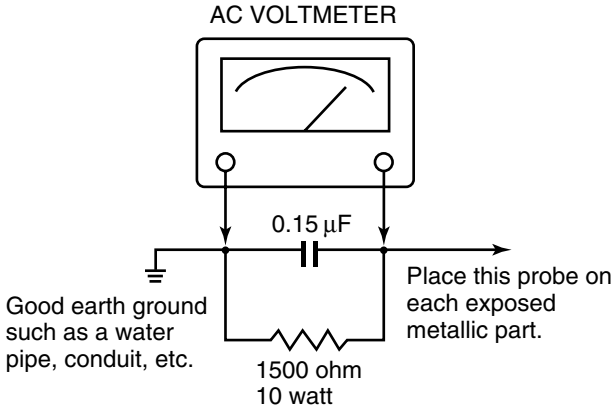
   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

   Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.675 volts rms. This corresponds to 0.45 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

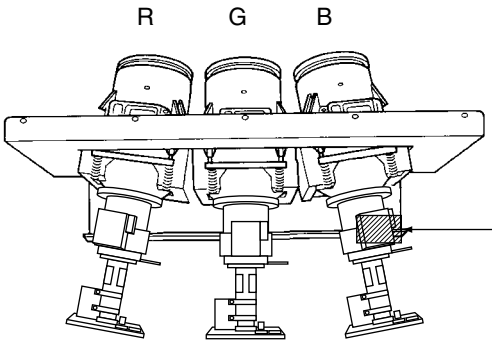

AC VOLTMETER
0.15 μF
Place this probe on each exposed metallic part.
Good earth ground such as a water pipe, conduit, etc.
1500 ohm
10 watt

PRODUCT SAFETY NOTICE

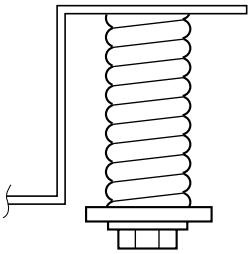
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

CRT ASSEMBLY REPLACEMENT AND MOUNTING

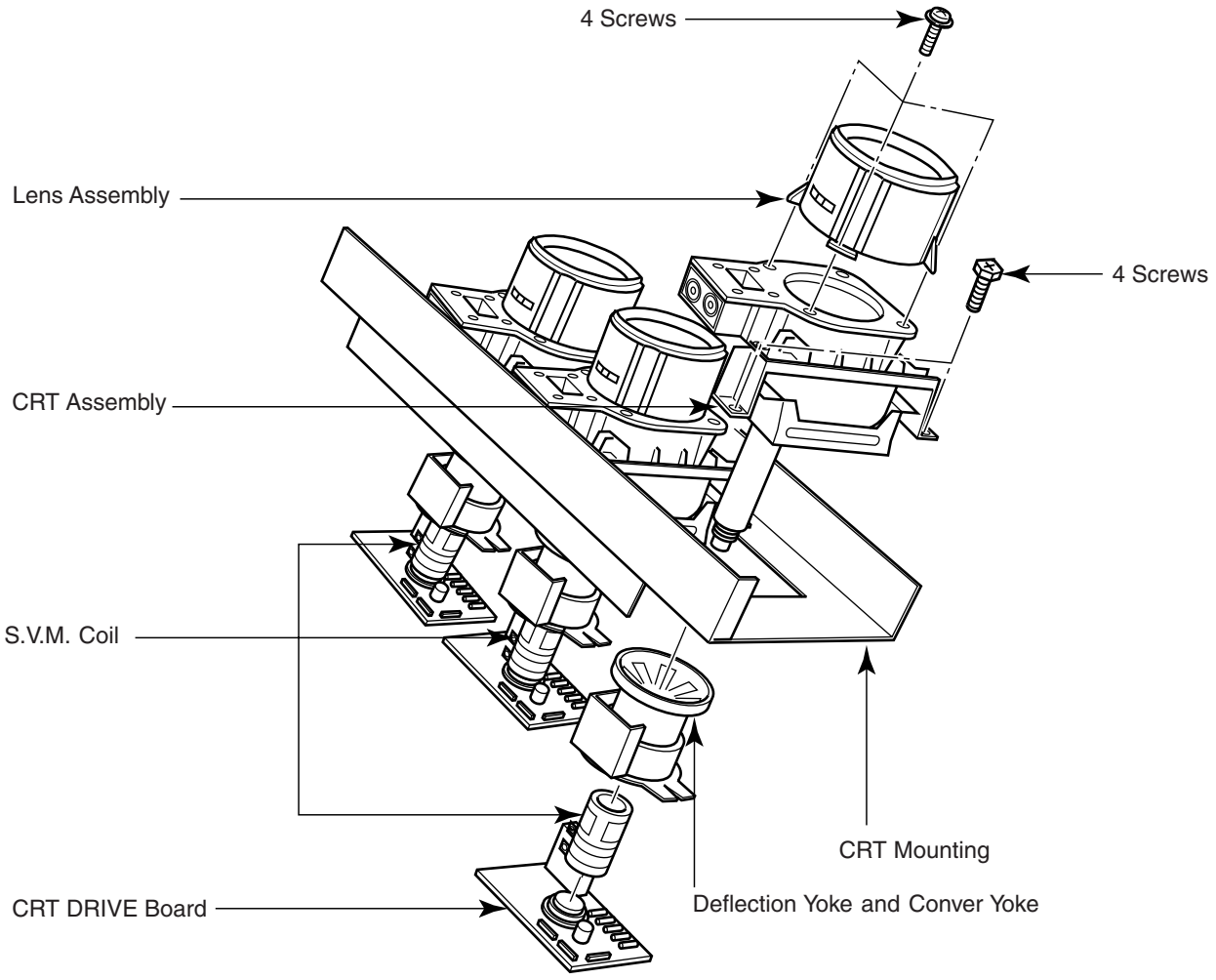
CAUTION : DO NOT LOOSEN THE HEX HEAD BOLTS WITH SPRINGS (12 PCS), BECAUSE THOSE ARE FOR SEALING OF CRT COOLANT.



Attention Serviceman



The Hex Head Bolts with Springs. (see sketch) used on CRT assembly, are NOT Adjustment Screws DO NOT LOOSEN-FLUID LEAKAGE WILL OCCUR.



Lens and Neck Components View

TO REMOVE CRT (Same procedure for R, G, B)

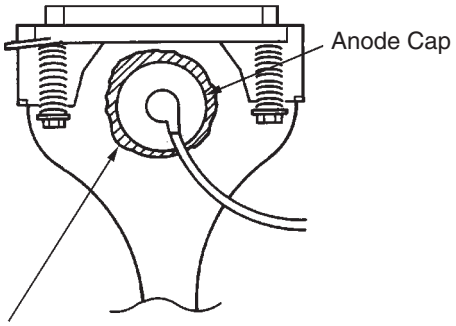
1. Remove CRT DRIVE Board, S. V. M. COIL and DEF. YOKE from CRT.
2. Remove Lens Assembly.
3. Detach CRT Anode Cap from CRT.
4. Remove CRT Assembly from CRT Mounting.

CRT REPLACEMENT (Same procedure for R, G, B)

Reverse the removal procedures except the followings.

1. Anode Cable should be replaced with new one. See “SERVICING PRECAUTIONS” shown below.
2. Install silicon (T461B) to the CRT, replace the Anode cable and put enough silicon again on around the Anode Cap as illustrated.

CAUTION: Align the Anode cable as illustrated on page 4.

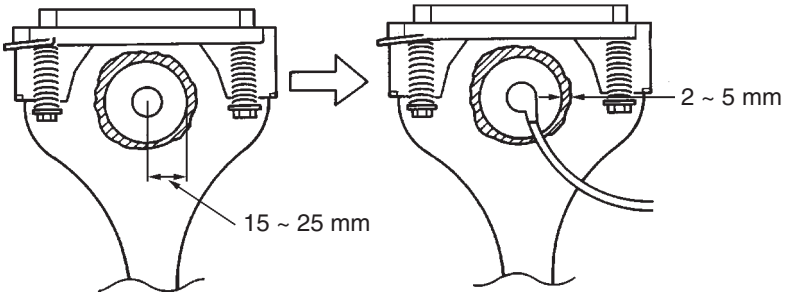


Silicon
(On shaded area)
TSE3843W #23960136

ADJUSTING PROCEDURE IN REPLACING CRT

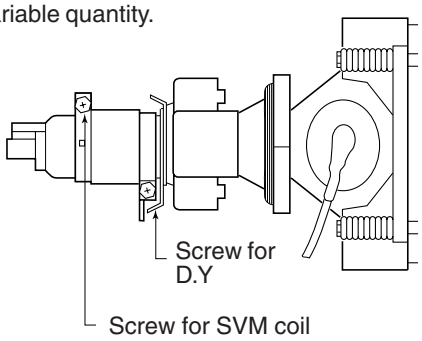
1. R.G.B. FOCUS ADJUSTMENT (page 7.)
2. PICTURE TILT ADJUSTMENT (page 7.)
3. USER CONVERGENCE CENTER CHECK (See owner's manual.)
4. CENTERING ADJUSTMENT (page 7.)
5. CONVERGENCE ADJUSTMENT (page 15.)
6. WHITE BALANCE ADJUSTMENT (page 12.)

Adjustments are complete.



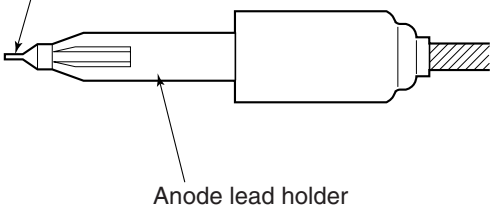
SERVICING PRECAUTIONS

■ Do not use a magnetized screw driver for screws of Deflection Yoke and Velocity Modulation Coil to avoid magnetization of electron gun. Magnetization of electron gun will degrade basic function and result in unbalance of right and left shift of user static convergence, and result in no variable quantity.



■ When replacing the anode cap assembly (CRT) or anode lead assembly (F.B.T.), remove the anode lead holder from old one and attach the holder again to new anode lead.

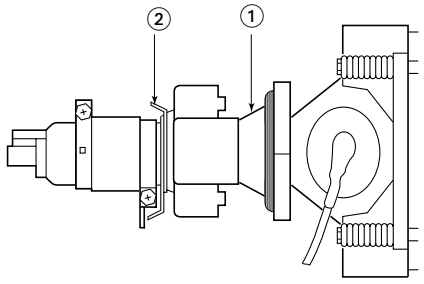
■ Check the point of anode lead in a straight line, if it is winding, please revise it.



WARNING : BEFORE SERVICING THIS CHASSIS, READ THE “X-RAY RADIATION PRECAUTION”, “SAFETY PRECAUTION” AND “PRODUCT SAFETY NOTICE” ON PAGE 3 OF THIS MANUAL.

PICTURE TUBE COMPONENTS ADJUSTMENT

DESCRIPTION OF NECK COMPONENTS



① Deflection yoke and convergence yoke
The position on the neck is required most front (CRT funnel side) and the screw is fastened after rotating yoke adjusting picture tilt.

② Centering magnet
After adjusting picture tilt, picture position is finally fixed by this magnet.
In order to get maximum margin of user convergence control for center of screen, this magnet have to be used for center convergence adjustment.

PREPARATION
Operate the receiver for at least 5 minutes.

R, G, B FOCUS ADJUSTMENT

1. Before adjusting the R, G, B FOCUS, remove the 4 screws of Lens Assembly which is fixed on the CRT Assembly. (See page 4.)
   Then turn around the Lens Assembly by 180 to adjust the fastening screw (Fig. a) and fasten the 4 screws to secure Lens Assembly.
2. Select the adjustment mode. (See page 10.)
3. Press “7” button to display the built-in cross-hatch.
4. Press “0” and “RTN” buttons to make the picture a single Red color.
   100 button ..... to erase Red color
   0 button ..... to erase Green color
   RTN button ..... to erase Blue color.
5. Loosen the fasten screw and adjust Red lens focus to best focusing point of picture center. Then fasten the screw. (See Fig. a.)

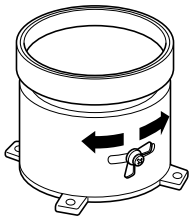


Fig. a

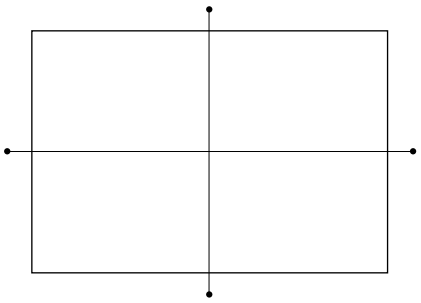
6. Adjust FOCUS VR “R” of FOCUS PACK to find best focusing point of picture center.
7. Repeat steps 3 to 5 for Green and Blue colors.

TILT ADJUSTMENT

Rotate R, G, B deflection yoke so that picture becomes horizon, then fasten screw.

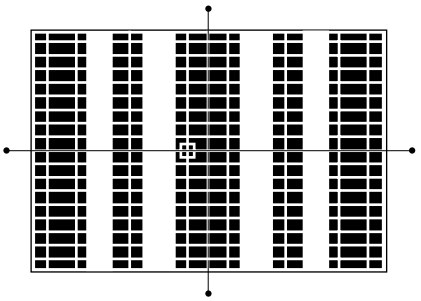
CENTERING ADJUSTMENT

1. Stretch a thread between two center of screen edge (top and bottom, left and right).



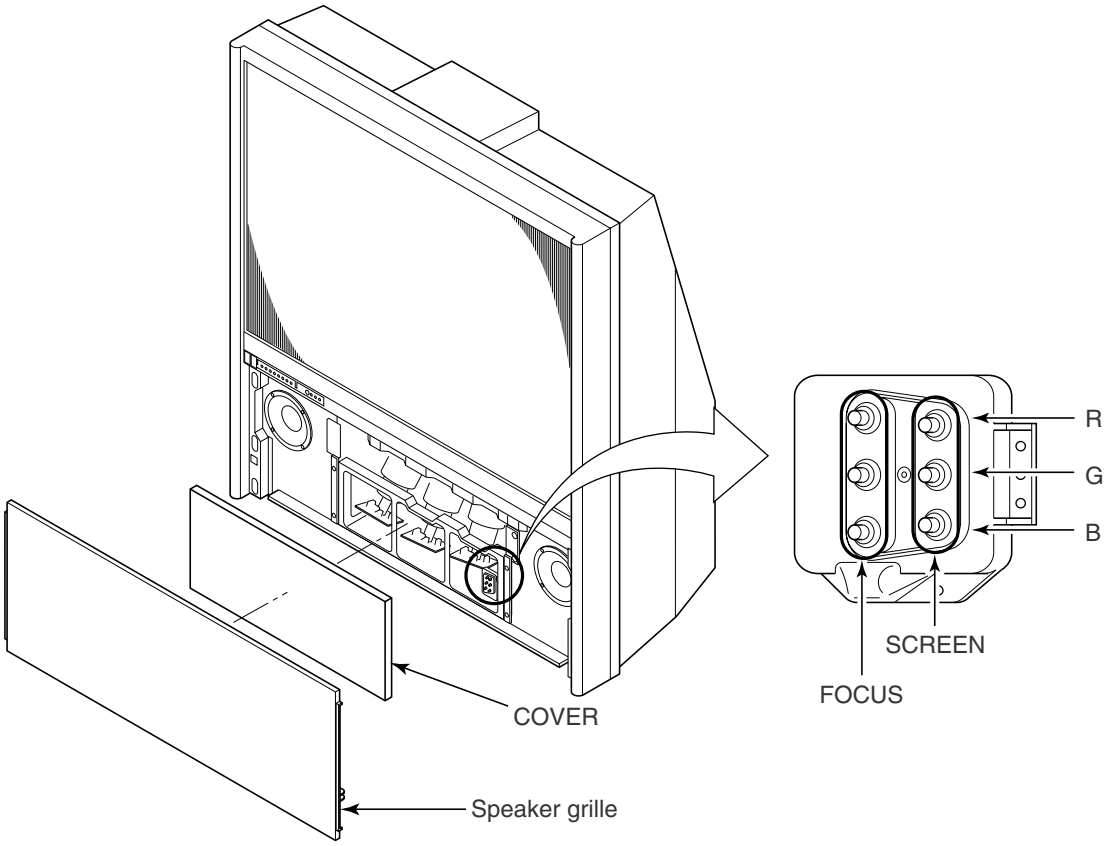
2. Receive NTSC.
   Then select SERVICE MODE. (See Page 10.)

3. Select CONVERGENCE ADJUSTING mode, and press "7" button to display the internal net pattern.
   Move Cursol and recognize horizontal line indicated Y:4. This line is vertical center. Push "9" button to display the vertical stripes, and recognize horizontal center.



4. Perform VCEN adjustment. (See page 16.)
5. Adjust G centering magnet so that the cross-bar pattern center comes to screen center.
6. Perform HEIGHT adjustment .
7. Perform VERT. LINEARITY adjustment.
8. Perform WIDTH adjustment. (See page 16.)
9. Check whole quality of green line.
10. Adjust R, B centering magnet so that the cross-bar pattern center comes to screen center.

LOCATION OF SCREEN AND FOCUS VR'S



REPLACEMENT OF THE CRT

Service parts are provided for each R, G and B.
The contents of the parts are as follows.

	R	G	B
51HC85	23078357	23078358	23078359
57HC85	23447326	23447324	23447327
65HC85	23447328	23447324	23447329
65HC15	23447981	23447982	23447983

REPLACEMENT OF HIGH VOLTAGE CABLE

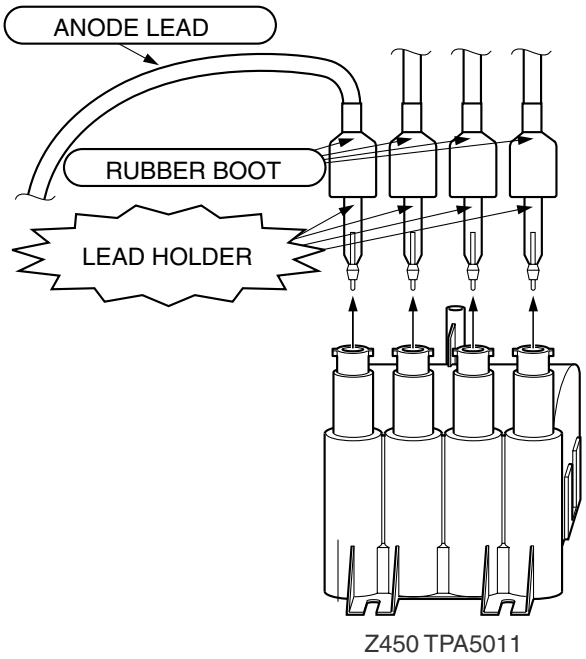


Fig. a

1. When replacing Anode Lead or Anode Cap with new one, remove Lead Holder from old lead as shown in figure below, and put it on new lead. Do not throw away Lead Holder.

NOTE : THE LEAD HOLDER IS ATTACHED TO TPA5011 (Z450), BUT IS NOT ATTACHED TO ANODE LEAD AND ANODE CAP. RUBBER BOOT IS ATTACHED TO ANODE LEAD AND ANODE CAP.

2. Detaching Lead Holder

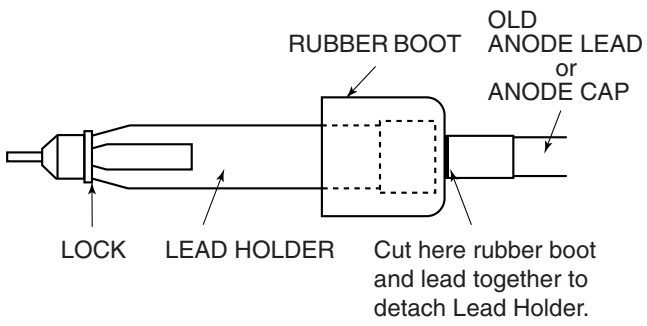


Fig. b

SERVICE MODE

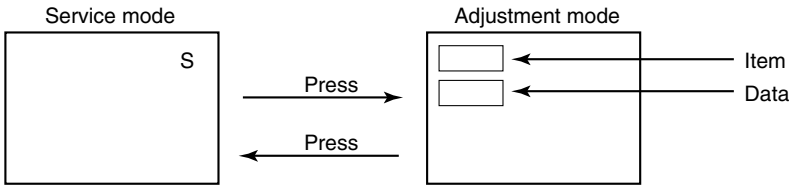
1. ENTERING TO SERVICE MODE

1) Press MUTE button twice on Remote Control.
2) Press MUTE button again to keep pressing.
3) While pressing the MUTE button, press MENU button on TV set.

(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

Screen adjustment mode ON/OFF:	TV (ANT)/VIDEO button (on TV)
Selection of the adjustment items :	Channel ▲/▼ (on Remote) and ▲/▼ (on TV)
Change of the data value :	Volume ▲/▼ (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	RECALL + ▲ button on TV
Initialization of the self diagnostic data:	RECALL + ▼ button on TV

“RCUT” selection :	1 button
“GCUT” selection :	2 button
“BCUT” selection :	3 button
“SCNT” selection :	4 button
“COLC” selection :	5 button
Convergence adj :	7 button
Self diagnostic display :	9 button

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 20)

5. ADJUSTING THE DATA

1) Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

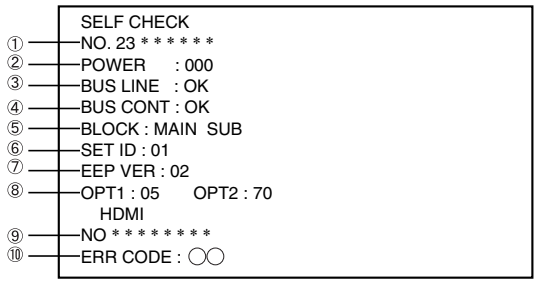
After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the RECALL button on the Remote, then press the ▲button on the TV. The initialization of QA02 has been completed.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. SELF DIAGNOSTIC FUNCTION

1) Press “9” button on Remote Control during display of adjustment menu in the service mode. The diagnosis will begin to check if interface among IC’s are executed properly.
2) During diagnosis, the following displays are shown.


SELF CHECK
①NO. 23 * * * * * *
②POWER : 000
③BUS LINE : OK
④BUS CONT : OK
⑤BLOCK : MAIN SUB
⑥SET ID : 01
⑦EEP VER : 02
⑧OPT1 : 05 OPT2 : 70
HDMI
⑨NO * * * * * * * *
⑩ERR CODE : ○○

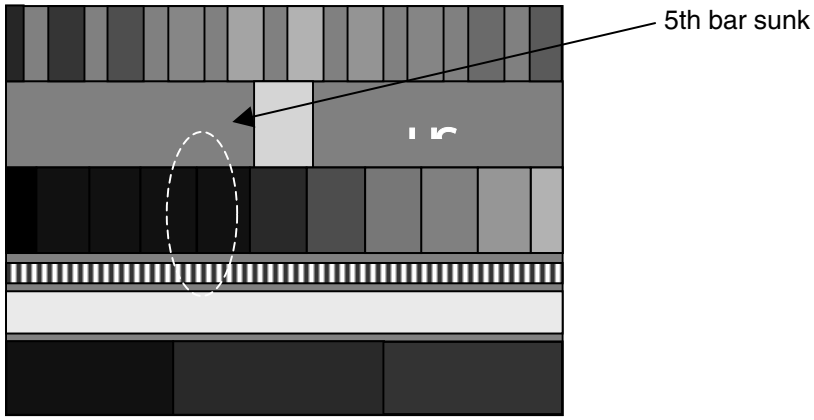
① Part number of microprocessor (QA01)
② Operation number of protection circuit (current limiter) . . . . “000” is normal.
③ BUS line check
- “OK” ..... Normal
- “SCL-GND” or “NG” ..... SCL-GND short circuit
- “SDA-GND” or “NG” ..... SDA-GND short circuit
- “SCL-SDA” or “NG” ..... SCL-SDA short circuit

④ BUS line ACK (acknowledge) check
- “OK” ..... Normal
- Display of Location Number . . . . NG
- (Display example)
- “QA02 NG”, “Q501 NG” etc.
- Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)

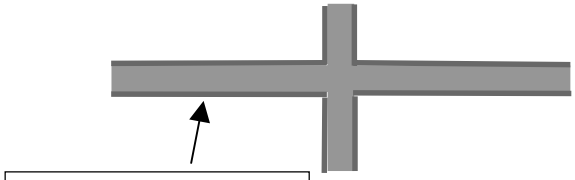
⑤ Sync. signal check
- Green display ..... Normal
- Red display ..... NG
  - MAIN ..... Main sync
  - SUB ..... Sub sync (when turn on the PIP)

⑥ ID code for TV Set
⑦ Version of "EEP"
⑧ Data for "OPT"
⑨ Part number of HDMI microprocessor
⑩ HDMI error code

ELECTRICAL ADJUSTMENTS

ADJUSTING ITEM	PROCESS INSTRUCTIONS	SIGNAL	ADJUSTMENT SPECIFICATION
SCREEN ADJUST	1. Heat runnning the set at minimum 15 minutes. 2. Go into screen adjustment mode. Adjust Focus pack Screen VR of Red, Green, and Blue by looking directly into each CRT and adjusting each screen VR until CRT is just lit on left side of CRT.		
WHITE BALANCE ADJUSTMENT	1. Adjust white luster level to get 4.3cd/m^2 on dark area, and get 264.3cd/m^2 on bright area. 2. Using the data up and down keys, cycle through the adjustments for RED DRIVE, BLUE DRIVE, RED BIAS and BLUE BIAS. Adjust RED DRIVE, BLUE DRIVE for bright area, and adjust RED BIAS and BLUE BIAS for dark area. 3. Continue to make adjustments color temperature to spec on each area.	White luster signal (Valuable input level)	10500k+0UV Same spec is applied on dark area and bright area.
SUB-BRIGHT ADJUSTMENT	1. Receive Sub-Bright pattern on Video input. 2. Go into BRTC of service mode. 3. Press DATA UP/DOWN to adjust Sub-Bright level to spec.  	Video input SUB-BRIGHT SIGNAL (Pedestal to white peak: 714mV ±30mV Value of low 10 steps: 200mV ±10mV)	5TH±1 BAR SUNK

FOCUS ADJUSTMENT (1/2)

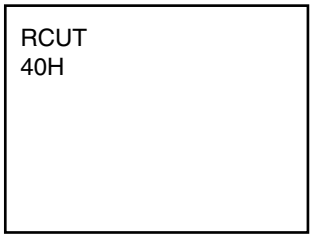
ITEM	ADJUSTMENT METHOD
Focus Adjustment	(Condition) • User Adjustment : SPORTS (CONTRAST MAX, BRIGHTNESS CENTER) • Adjust after Centering Magnet adjusts. • Signal : Lens Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) Electrical Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) (Adjustment) 1. Common Items 1) Rough Adjust the lens focus and electrical focus of each color(R, G, B). 2. Green Adjustment 1) Receive green single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Green electrical focus. Adjust Green electrical focus VR on focus pack (Z410) for best center focus. If the focus blur on screen center and circumference, adjust the electrical focus is best point on all of screen. 4) Adjust Green lens focus. Receive the Dot Cross pattern. Adjust Green lens for best center focus. Green lens focus adjustment target Dot-cross has red flare (red flare width :1mm)  5) Repeat (3)~(4),and adjust best focus point.

FOCUS ADJUSTMENT (2/2)

ITEM	ADJUSTMENT METHOD
Focus Adjustment	3. Red Adjustment 1) Receive Red single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Red electrical focus. Adjust Red electrical focus VR on focus pack (Z410) for best center focus. 4) Adjust Red lens focus. Receive the Dot Cross pattern. Adjust Red lens for best center focus. 5) Repeat (3)~(4),and adjust best focus point. 4. Blue Adjustment 1) Receive Blue single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Blue electrical focus. Adjust Blue electrical focus VR on focus pack (Z410) for best center focus. (The Brightness is minimum point of Blue.) 4) Adjust Blue lens focus. Receive the Dot Cross pattern. Adjust the Blue lens for best center focus. After easy lens adjustment, turn to right side lens focus screw, and so dot-cross has flare. Next turn left focus screw, so flare disappears in Dot-Cross and Dot-Cross become blur. This point is blue lens focus adjustment target. (flare disappear and become blur)

CONVERGENCE ADJUSTMENT

1. Receive NTSC signal.
2. Enter to the service mode. (See Page 10.)



3. Press "7" button to enter the convergence adjusting mode, and the internal net pattern will be displayed. Then, press "9" button to display veritcal stripes.
4. Select the point and the color by pressing following buttons. (Cursor should be blinking.)
   "2", "8", "4", "6" : To select point
   "3" : To select color
5. Then press "5" button, and adjust the convergence by pressing following buttons. (Cursor should not be blingking.)
   "2", "8", "4", "6" : To adjust convergence
   "3" : To select color
6. Repeat from steps 3 to 4 until the convergence and the geometry become fine. (See Page 14.)
7. Press "7" button to memorize the adjusted data.

EXPLANATION OF KEY-FUNCTION IN THE CONVERGENCE ADJUSTMENT MODE

Load BACK UP DATA:	1 button
Up :	2 button
Selet Green color:	3 button
Left :	4 button
Blinking of cursor ON/OFF:	5 button
Right:	6 button
Adjust mode ON/OFF:	7 button
Down:	8 button
Vertical stripe ON/OFF	9 button
Erase Green line:	0 button
Erase Red line:	100 button
Erase Blue line:	ENT button

Note: The following message will appear while pressing "1" button.
ENTER: TO LOAD BACKUP DATA
MUTE: TO LOAD INITIAL DATA
EXIT: TO EXIT

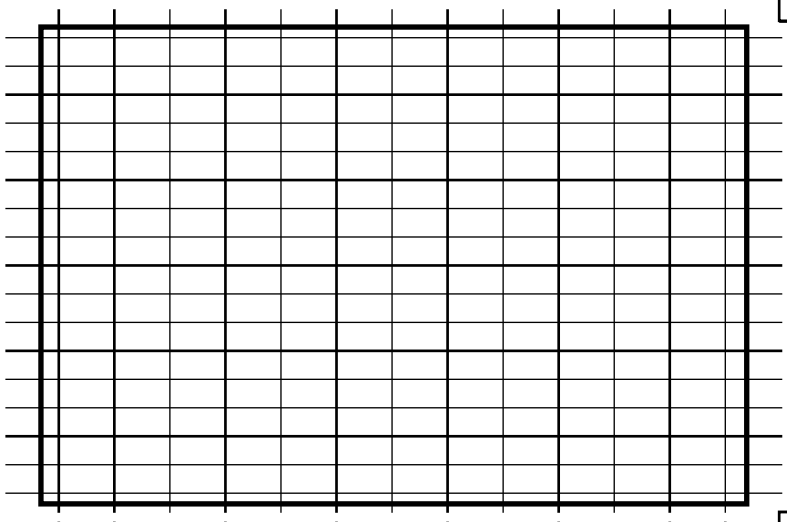
BACKUP DATA sets in factory by performing CALIBRATION. BACKUP DATA updates by performing CALIBRATION again. INITIAL DATA uses the seed data on this model. Thus, it cannot updates. INITIAL DATA is not adjusted. Therefore, convergence data operates incorrectly. Normally, BACKUP DATA operates as base data on this model. If BACKUP DATA is incorrectly operated, INITIAL DATA is operated instead of BACKUP DATA.

DEFRECTION and CONVERGENCE

ITEM	NAME	SETTING	INPUT SIGNAL	TEST POIN	MEASURING INSTRUMENT	ADJUSTMENT METHOD	ADJUSTMENT SPEC
VCEN	VERTICAL Raster centeing Adjustment	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT	Retma Signal	Between TP-G to TP-V	Digital Volt Meter	Adjust the voltage between TP-G and TP-V.	0±10 mV
DY Tilt Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	D-Cross Pattern	Picture Adjustment	Picture Adjustment	After roughly the green centering magnet alignment, adjust the green yoke so that the D-cross is as close as possible to the dummy screen cross. Adjust the Red and Blue in the same manner as Green.	The dummy screen cross and D-cross Gap ± 5mm.
Centering magnet Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the green center to the screen center with the centering magnet on Retma signal. And adjust the Red and Blue center to the green center each.	Color gap at the screen center is within ± 3mm.
WID	Horizontal Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE :ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Horizontal width by WID on the green raster only. After finishing Convergence adjustment, make sure that the width is the same as the spec.	11 ± 1 bar In case of C-MUTE OFF is the same spec as well.
HIT (VLIN)	Vertical Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS: CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE : ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Vertical height by HIT(VLIN) on the green raster only.After finishing Convergence adjustment, make sure that the height is the same as the spec with C-MUTE OFF.	In case of Convergence mute. Upper left...5 ± 0.5 bar Bottom right...5 ± 0.5 bar In case of C-MUTE OFF. Upper left...4 ± 0.5 bar Bottom right...4 ± 0.5bar.
Convergence			Retma Signal	Picture Adjustment	Picture Adjustment	Refer to the following (Convergence Net Geometry)	

CONVERGENCE (Adjust the voltage between TP-G and TP-V)

Net Pattern Geometry



Model	51WIDE	57WIDE	65WIDE
V size	635.085	708.750	810.00
	308.0	344.0	392.8
	231.0	258.0	294.6
	115.5	129.0	147.3
	0.0	0.0	0.0
	115.5	129.0	147.3
	231.0	258.0	294.6
	308.0	344.0	392.8
V span	38.5	43.0	49.1

Model	H size										H span
51WIDE	1129.0	537.6	448.0	268.8	89.6	0.0	89.6	268.8	448.0	537.6	89.6
57WIDE	1260.0	600.0	500.0	300.0	100.0	0.0	100.0	300.0	500.0	600.0	100.0
65WIDE	1442.0	686.7	572.2	343.3	114.4	0.0	114.4	343.3	572.2	686.7	114.4

UNIT: mm

NOTES

In many cases, color misconvergence may be corrected by returning HIT and WID data in main deflection side to initial adjusting values. Following cases will surely require readjustment of convergence.

CRT REPLACEMENT

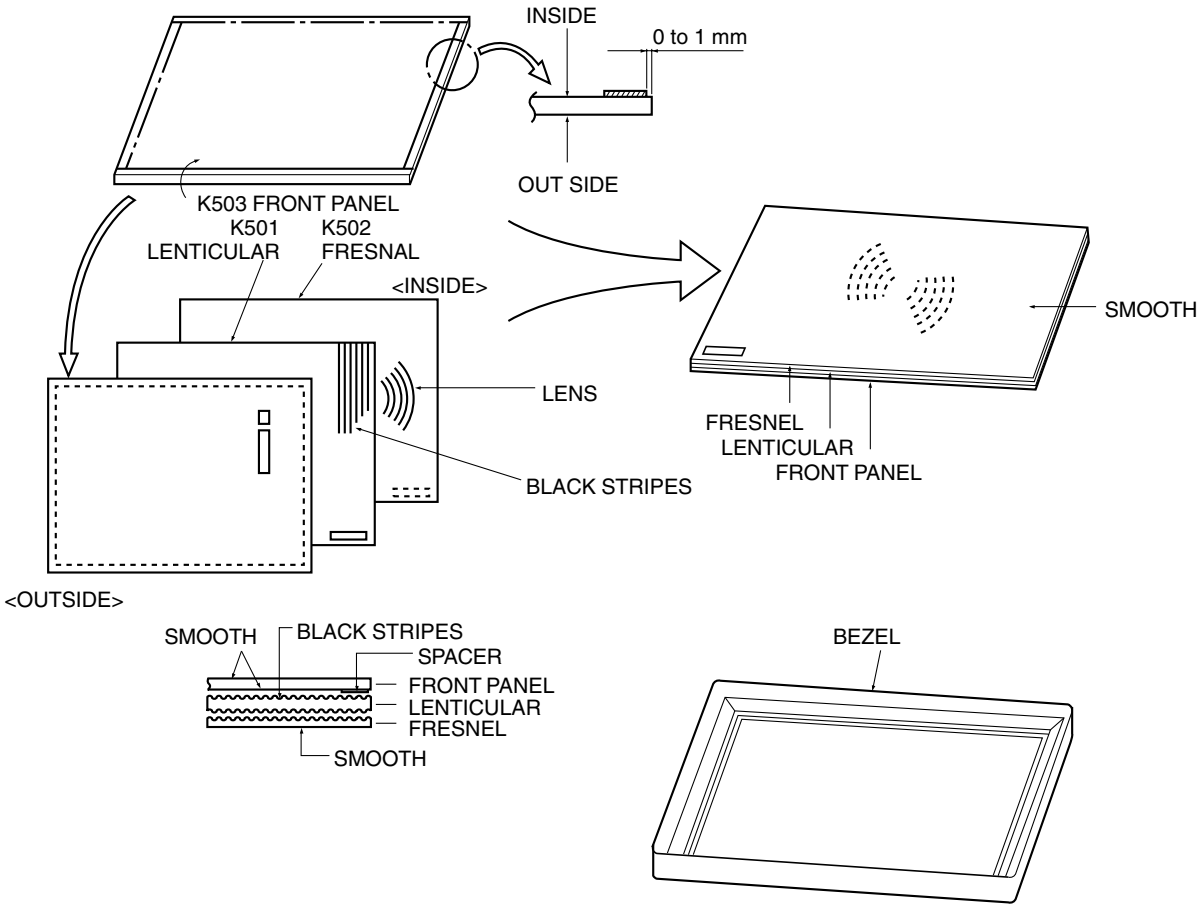
When CRT is replaced, main deflection readjustment and color matching are required.
Perform following procedures.

1. Replace two CRT's of blue and red.
2. Perform horizontal adjustment for blue and red yokes on base of green CRT data. Mount yoke and velocity mod. coil alignment, pushing towards CRT without gap.
3. Adjust alignment of blue and red. (Refer Alignment adjustment for details.)
4. Rotating centering magnet, adjust CRT centers of red and blue to CRT center of green.
   (Picture position adjustment)
5. Adjust HIT and WID data of main deflection, and decide data at the most precise screen comparing to green data.
6. Adjust convergence of screen picture for color matching. Do not move green one at this time.
7. After convergence adjustment of screen picture finishes, replace green CRT.
   For green CRT as well, repeat steps 2 to 5 above on bases of red and blue color matching to adjust convergence.
8. Execute TOUCH FOCUS following instructions displayed on the screen after finishing convergence adjustments of all the colors.
   Note: Press button "7" again after "PLEASE PUSH TOUCH FOCUS" has been displayed. Then, TOUCH FOCUS will not be executed, and the current state of convergence will be displayed.

SCREEN AND MIRROR ALIGNMENTS

ASSEMBLING OF FRONT SCREEN

MOUNTING OF FRONT SCREEN



CAUTION : Do not hold the optical system parts (lens and mirror) with bare hand to avoid finger-prints on the surface of those parts.

HOW TO CLEAN LENS AND MIRROR

1. Be sure to remove sand dust with an air brush, etc.
2. When it is stained slightly, breathe upon it and wipe away with the specified cleaning cloth.
   For other stains than the above, wipe the stains away with the specified cloth into which a cleaning liquid has been soaked.

Cleaning liquid..... **LENS LUSTER** (Manufactured by Edmund Scientific Co.), etc.

HOW TO CLEAN SCREEN

When cleaning the screen, use a soft cloth so as not to damage the screen.

1. Wipe the screen with a dry cloth to remove moisture on the screen.

Note : Absolutely do not use detergent, water, alcohol, benzine, thinner, etc. for cleaning in order not to wipe away the black print on the surface.

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST to minimum (zero beam current).
3. High voltage must be measured below (B) kV.
   Refer to table-1 for high voltage (B).
   (See SETTING & ADJUSTING DATA on page 20)
4. Vary the BRIGHTNESS to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CAUTION:

When the following parts fail, check the High Voltage after replacing.

Location No.	Name	Descriptions
		51", 57", 65"
T461Z	Flyback	TFB3094ZD
C440	Capacitor	1000pF, ±3%
C443	Capacitor	4700pF, ±3%
C444	Capacitor	3600pF, ±3%
C467	Capacitor	5600pF, ±5%
C468	Capacitor	6800pF, ±5%

ANODE VOLTAGE MEASURING METHOD

CAUTION: Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, DEFLECTION assembly, and POWER SUPPLY assembly).

1. Disconnect the FBT anode cable as outlined below. Measure high voltage at the point where the cable enters the FBT.
2. Holding the rubber cover firmly, turn it counterclockwise and check that the lock has been disengaged. (See Fig. b on page 9.)
3. Determine the extent of the rubber cover before disconnecting the cable.
4. Pull straight up the anode cable to disconnect.
5. When reconnecting the cable, proceed in the reverse order. After reconnecting, tug on the cable to check that it is secure.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on.
2. Temporarily short TP- (R) and TP- (X) on the DEF/POWER Board with a jumper wire.
   Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the receiver on to produce a normal picture.

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】

		51", 57", 65"
HIGH VOLTAGE AT ZERO BEAM:	(A)	32.8 kV
MAX HIGH VOLTAGE:	(B)	33.9 kV

Table-1

【SERVICE MODE】

ADJUSTING ITEMS AND DATA IN THE SERVICE MODE:

Item	Name of adjustment	Preset	Data
RCUT	R CUT OFF	80H	←
BCUT	B CUT OFF	80H	←
RDRV	R DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	BRIGHT CENTER	80H	←
HIT	PICTURE HIT	30H	←
LIN	V LINEARITY	12H	←
VSC	V S CORRECTION	29H	←
WID	PICTURE WIDTH	48H	←

Item	Name of adjustment	Preset	Data
COLC	COLOR CENTER	5DH	←
VCP	V COMPENSATION	06H	←
PARA	EW PARABOLA	0FH	←
CNR	EW M CORRECTION	10H	←
HCP	H COMPENSATION	00H	←
VFC	V f CORRECTION	00H	←
VCEN	V CENTERRING	7AH	←
TVOP	TV OPTION	40H	←

Table-2

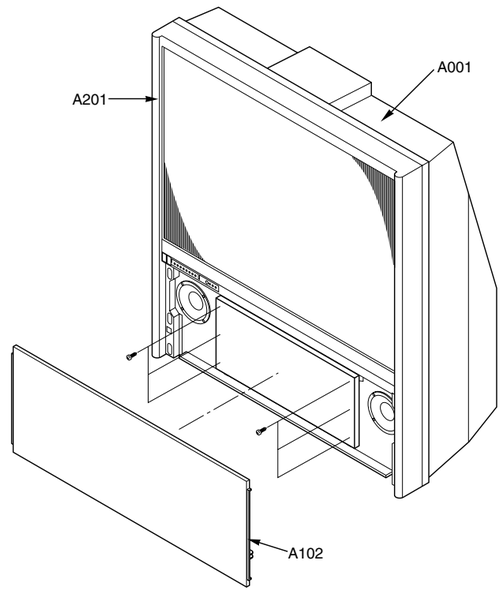
【CIRCUIT CHECKS】

HIGH VOLTAGE DET	Q306 #⑧pin-GND	9.0 V

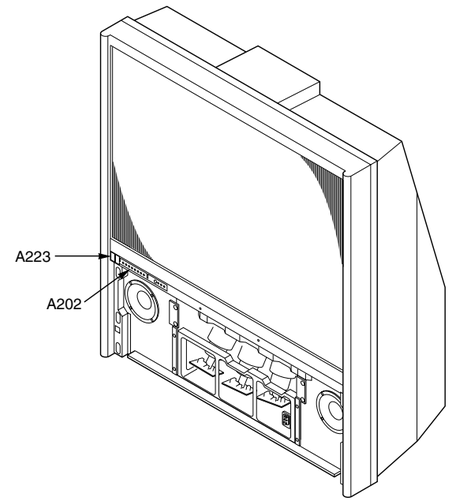
Table-3

MECHANICAL DISASSEMBLY

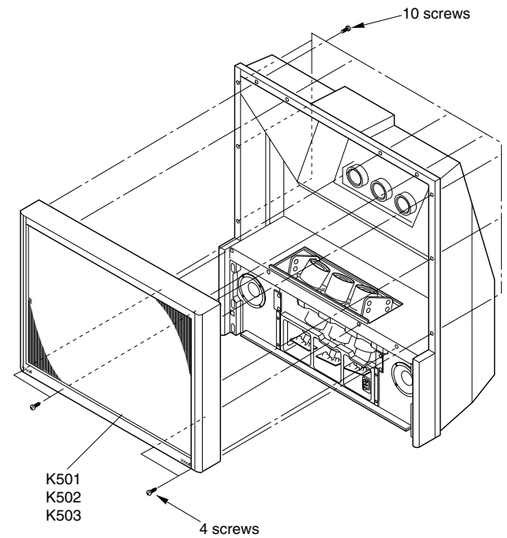
1 Speaker Grille Removal



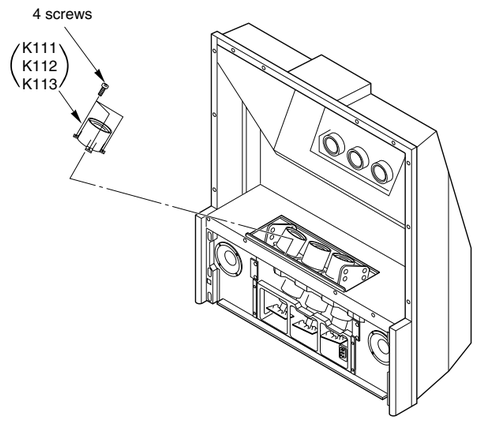
2 Control Panel Removal



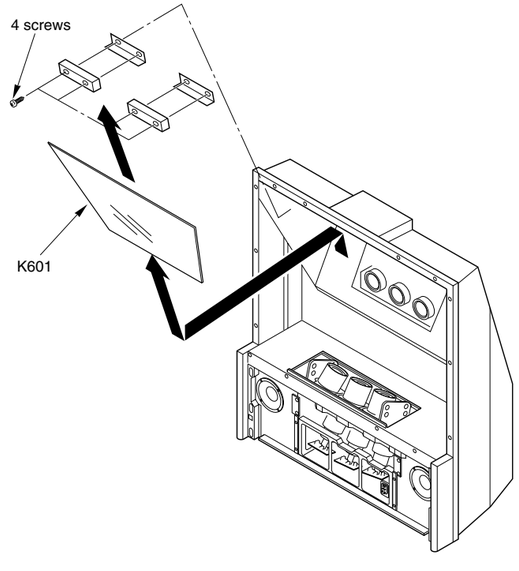
3 Front Mask Removal



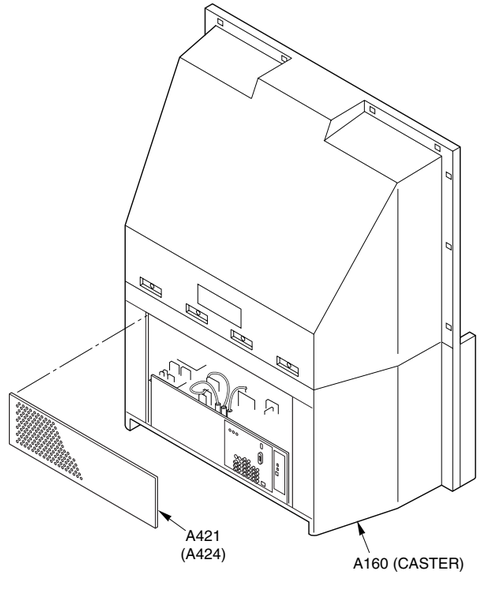
4 Shield Plate, Lens Removal



5 Mirror Removal



6 Back Board Removal



CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:

The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

The PC board assembly with ∗ mark is no longer available after the end of the production.

Model : 51HC85/57HC85/65HC15/65HC85

Capacitors	CD	: Ceramic Disk	PF	: Plastic Film	EL	: Electrolytic
Resistors	CF	: Carbon Film	CC	: Carbon Composition	MF	: Metal Film
	OMF	: Oxide Metal Film	VR	: Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Parts No.	Description
#1 : [51HC85]		
#2 : [57HC85]		
#3 : [65HC15]		
#4 : [65HC85]		
CAPACITORS		
C108	76665221	ELECTROLYTIC, 10V 220UF M 3A
C109	76100104	CERAMIC CHIP, 25V F 0.1UF Z
C110	76794101	ELECTROLYTIC, 16V 100UF M
C221	76503041	PLASTIC FILM , 63V 0.1UF J
C301	76503053	PLASTIC FILM, 63V 1UF J
C302	76669010	ELECTROLYTIC, 50V 1UF M 3A
C303	76503053	PLASTIC FILM, 63V 1UF J
C308	76567223	PLASTIC FILM, 50V 0.022UF J
C309	76109102	CERAMIC CHIP, 50V B 1000PF K
C310	76073053	ELECTROLYTIC, 25V 100UF M 3A
C311	76109103	CERAMIC CHIP, 50V B 0.01UF K
C312	76109332	CERAMIC CHIP, 50V B 3300PF K
C314	76503037	PLASTIC FILM, 63V 0.047UF J
C315	76073020	ELECTROLYTIC, 10V 1000UF M 3A
C320	76669101	ELECTROLYTIC, 50V 100UF M
C321	76669101	ELECTROLYTIC, 50V 100UF M
C323	76109473	CERAMIC CHIP, 25V B 0.047UF K
C324	76503053	PLASTIC FILM, 63V 1UF J
C325	76082057	PLASTIC FILM, 100V 0.22UF J
C327	76092730	CERAMIC CHIP, 16V B 0.1UF K
C328	76082256	PLASTIC FILM, 100V 2200PF J
C330	76073034	ELECTROLYTIC, 16V 10UF M 3A
C332	76669101	ELECTROLYTIC, 50V 100UF M
C333	76082272	PLASTIC FILM, 100V 0.047UF J
C334	76109471	CERAMIC CHIP, 50V B 470PF K
C338	76666100	ELECTROLYTIC, 16V 10UF M 3A
C340	76073037	ELECTROLYTIC, 16V 47UF M 3A
C361	76092730	CERAMIC CHIP, 16V B 0.1UF K
C362	76109473	CERAMIC CHIP, 25V B 0.047UF K
C370	76669229	ELECTROLYTIC, 50V 2.2UF M 3A
C371	76092730	CERAMIC CHIP, 16V B 0.1UF K
C401	76214332	CERAMIC DISC, 500V B 3300PF K
C402	76214391	CERAMIC DISC, 500V B 390PF K
C405	76503041	PLASTIC FILM , 63V 0.1UF J
C412	76828124	PLASTIC FILM, 200V 0.12UF J
C415	76092484	CERAMIC DISC, 2KV B 1500PF K
C416	76676220	ELECTROLYTIC, 100V 22UF M 3A
C417	76503334	PLASTIC FILM, 250V 1.5UF J
C419	76105331	CERAMIC CHIP, 50V CH 330PF J
C420	76503041	PLASTIC FILM , 63V 0.1UF J

Location No.	Parts No.	Description
C422	76109102	CERAMIC CHIP, 50V B 1000PF K
⚠ C423	76503252	PLASTIC FILM, 400V 0.3UF J
⚠ C425	76503142	PLASTIC FILM, 400V 0.27UF J
C426	76211222	CERAMIC DISC, 2KV B 2200PFK
C432	76567333	PLASTIC FILM, 50V 0.033UF J
⚠ C440	76503059	PLASTIC FILM, 1800VH 1000PF H
⚠ C443	76503099	PLASTIC FILM, 1800VH 4700PF H
⚠ C444	76503347	PLASTIC FILM, 1800VH 3600PF H
C445	76828473	PLASTIC FILM, 200V 0.047UF J
C446	76073120	ELECTROLYTIC, 250V 33UF
C448	76073118	ELECTROLYTIC, 160V 33UF M
C449	76214221	CERAMIC DISC, 500V B 220PF K
C450	76073057	ELECTROLYTIC, 25V 1000UF M 3A
C460	76678220	ELECTROLYTIC, 200V 22UF M
C463	76109682	CERAMIC CHIP, 50V B 6800PF K
C464	76503149	PLASTIC FILM, 250V 3.3UF
⚠ C467	76820562	PLASTIC FILM, 630V 5600PF J
⚠ C468	76820682	PLASTIC FILM, 630V 6800PF J
C473	76092730	CERAMIC CHIP, 16V B 0.1UF K
C481	76092784	CERAMIC CHIP, 10V B 0.33UF K
C482	76109822	CERAMIC CHIP, 50V B 8200PF K
C483	76105470	CERAMIC CHIP, 50V CH 47PF J
C490	76073037	ELECTROLYTIC, 16V 47UF M 3A
C491	76666100	ELECTROLYTIC, 16V 10UF M 3A
C496	76503049	PLASTIC FILM, 63V 0.47UF J
C497	76085022	ELECTROLYTIC, NP, 16V 100UF M 3A
C499	76666220	ELECTROLYTIC, 16V 22UF M 3A
C601	76109681	CERAMIC CHIP, 50V B 680PF K
C602	76109681	CERAMIC CHIP, 50V B 680PF K
C603	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C604	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C605	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C606	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C607	76073053	ELECTROLYTIC, 25V 100UF M 3A
C608	76073086	ELECTROLYTIC, 50V 10UF M 3A
C612	76073039	ELECTROLYTIC, 16V 220UF M 3A
C661	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C662	76073086	ELECTROLYTIC, 50V 10UF M 3A
C663	76073086	ELECTROLYTIC, 50V 10UF M 3A
C665	76109103	CERAMIC CHIP, 50V B 0.01UF K
C666	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C667	76794100	ELECTROLYTIC, 16V 10UF M
C680	76073073	ELECTROLYTIC, 35V 2200UF M 3A
C681	76109103	CERAMIC CHIP, 50V B 0.01UF K
C682	76073082	ELECTROLYTIC, 50V 2.2UF M 3A
C683	76795101	ELECTROLYTIC, 25V 100UF M

Location No.	Parts No.	Description
C684	76795470	ELECTROLYTIC, 25V 47UF M
C698	76085055	CHEMICON NP 25V 222 25V 2200UF M
C699	76085055	CHEMICON NP 25V 222 25V 2200UF M
⚠ C801	76503004	PLASTIC FILM, AC275V 0.47UF M
C805	76092281	CERAMIC DISC, AC250V E 4700PF
C809	76086067	CHEMICON 200V 102M LGQ2D102MESHTL
C810	76086067	CHEMICON 200V 102M LGQ2D102MESHTL
⚠ C811	76092595	CERAMIC DISC, AC250V E 2200PF M
⚠ C812	76092595	CERAMIC DISC, AC250V E 2200PF M
⚠ C814	76092579	CERAMIC DISC, AC250V B 470PF K
C840	76679220	ELECTROLYTIC, 250V 22UF M 3A
C841	76073097	ELECTROLYTIC, 10V 2200UF M 3A
C842	76503041	PLASTIC FILM , 63V 0.1UF J
C843	76092333	CERAMIC DISC, 2KV 100PF K
C845	76669229	ELECTROLYTIC, 50V 2.2UF M 3A
C849	76073038	ELECTROLYTIC, 16V 100UF M 3A
C850	76073187	ELECTROLYTIC, 35V 560UF M 3A
C851	76073187	ELECTROLYTIC, 35V 560UF M 3A
C852	76073169	ELECTROLYTIC, 25V 470UF M 3A
C853	76073169	ELECTROLYTIC, 25V 470UF M 3A
C854	76667470	ELECTROLYTIC, 25V 47UF M 3A
C860	76214103	CERAMIC DISC, 500V B 0.01UF K
C862	76092341	CERAMIC DISC, 2KV R 470PF K
C863	76503045	PLASTIC FILM, 63V 0.22UF J
C866	76503053	PLASTIC FILM, 63V 1UF J
C867	76591472	PLASTIC FILM, 50V 4700PF J
C868	76669470	ELECTROLYTIC, 50V 47UF M 3A
C869	76678229	ELECTROLYTIC, 200V 2.2UF M 3A
C870	76503565	PLASTIC FILM, 800V 0.1UF H
C871	76092343	CERAMIC DISC, 2KV 680PF K
C873	76503045	PLASTIC FILM, 63V 0.22UF J
C874	76092337	CERAMIC DISC, 2KV 220PF K
C876	76503049	PLASTIC FILM, 63V 0.47UF J
C877	76092344	CERAMIC DISC, 2KV 820PF K
C879	76214102	CERAMIC DISC, 500V B 1000PF K
C880	76092339	CERAMIC DISC, 2KV 330PF K
C881	76092339	CERAMIC DISC, 2KV 330PF K
C884	76086916	ELECTROLYTIC, 160V 330UF M 3D
C885	76668102	ELECTROLYTIC, 35V 1000UF M 3A
C888	76503045	PLASTIC FILM, 63V 0.22UF J
C891	76073155	ELECTROLYTIC, 16V 1000UF M 3A
C892	76073155	ELECTROLYTIC, 16V 1000UF M 3A
C893	76073141	ELECTROLYTIC, 10V 1000UF M 3A
C898	76092730	CERAMIC CHIP, 16V B 0.1UF K
C901	76211102	CERAMIC DISC, 2KV B 1000PF K
C902	76794101	ELECTROLYTIC, 16V 100UF M
C903	76232103	CERAMIC DISC, 50V F 0.01UF Z
C904	76109471	CERAMIC CHIP, 50V B 470PF K
C906	76679220	ELECTROLYTIC, 250V 22UF M 3A
C907	76214101	CERAMIC DISC, 500V B 100PF K
C911	76211102	CERAMIC DISC, 2KV B 1000PF K
C912	76794101	ELECTROLYTIC, 16V 100UF M
C913	76232103	CERAMIC DISC, 50V F 0.01UF Z
C914	76109471	CERAMIC CHIP, 50V B 470PF K
C915	76679220	ELECTROLYTIC, 250V 22UF M 3A
C917	76214101	CERAMIC DISC, 500V B 100PF K
C921	76211102	CERAMIC DISC, 2KV B 1000PF K
C922	76794101	ELECTROLYTIC, 16V 100UF M
C923	76109471	CERAMIC CHIP, 50V B 470PF K
C924	76232103	CERAMIC DISC, 50V F 0.01UF Z
C925	76679220	ELECTROLYTIC, 250V 22UF M 3A
C926	76214101	CERAMIC DISC, 500V B 100PF K
C934	76092731	CERAMIC CHIP, 16V B 1UF K
C944	76092542	CERAMIC CHIP, 16V B 1UF K
C954	76092731	CERAMIC CHIP, 16V B 1UF K
C961	76763101	ELECTROLYTIC, 16V 100UF M
C962	76203100	ELECTORLYTIC, 16V 10UF M 7L 3A
C4430	76073034	ELECTROLYTIC, 16V 10UF M 3A
C7101	76797470	ELECTROLYTIC, 50V 47UF M
C7102	76109103	CERAMIC CHIP, 50V B 0.01UF K
C7103	76206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
C7104	76108330	CERAMIC CHIP, 50V SL 33PF J
C7105	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7106	76797470	ELECTROLYTIC, 50V 47UF M
C7107	76790470	ELECTROLYTIC, 160V 47UF M
C7108	76214472	CERAMIC DISC, 500V B 4700PF K
C7109	76214472	CERAMIC DISC, 500V B 4700PF K
C7110	76666470	ELECTORLYTIC, 16V 47UF M 3A
C7111	76666470	ELECTORLYTIC, 16V 47UF M 3A
C7112	76435560	CERAMIC DISC, 500V SL 56PF J
C7113	76790100	ELECTROLYTIC, 160V 10UF M
C7114	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7701	76503047	PLASTIC FILM, 63V 0.33UF J
C7704	76073053	ELECTROLYTIC, 25V 100UF M 3A
C7705	76073037	ELECTROLYTIC, 16V 47UF M 3A
C7706	76503047	PLASTIC FILM, 63V 0.33UF J
C7722	76105331	CERAMIC CHIP, 50V CH 330PF J
C7724	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7725	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7727	76105331	CERAMIC CHIP, 50V CH 330PF J
C7730	76105331	CERAMIC CHIP, 50V CH 330PF J
C7733	76105331	CERAMIC CHIP, 50V CH 330PF J
C7735	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7736	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7738	76105331	CERAMIC CHIP, 50V CH 330PF J
C7741	76105331	CERAMIC CHIP, 50V CH 330PF J
C7750	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7751	76073089	ELECTROLYTIC, 50V 47UF M 3A
C7752	76073089	ELECTROLYTIC, 50V 47UF M 3A
C7753	76073093	ELECTROLYTIC, 50V 470UF M 3A
C7761	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7762	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7765	76667220	ELECTROLYTIC, 25V 22UF M 3A
C7784	76667220	ELECTROLYTIC, 25V 22UF M 3A
C7785	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7786	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7800	76666220	ELECTROLYTIC, 16V 22UF M 3A
CB01	24794470	ELECTROLYTIC, 16V 47UF M
CB51	24590103	PLASTIC FILM, 50V 0.01UF J
CB52	24794470	ELECTROLYTIC, 16V 47UF M
CB53	24503041	PLASTIC FILM , 63V 0.1UF J
CB54	24436221	CERAMIC DISC, 50V SL 220PF J
CB55	24797010	ELECTROLYTIC, 50V 1UF M
CB56	24794470	ELECTROLYTIC, 16V 47UF M
CB58	24794470	ELECTROLYTIC, 16V 47UF M
CB59	24590103	PLASTIC FILM, 50V 0.01UF J
CB60	24794100	ELECTROLYTIC, 16V 10UF M
CB61	24503041	PLASTIC FILM , 63V 0.1UF J
CB504	76794100	ELECTROLYTIC, 16V 10UF M
CB505	76590104	CERAMIC DISC, 50V 0.1UF J
CV14	76212102	CERAMIC DISC, 50V B 1000PF K
CV27	76762471	ELECTROLYTIC, 10V 470UF M
CV29	76763101	ELECTROLYTIC, 16V 100UF M
CV30	76232103	CERAMIC DISC, 50V F 0.01UF Z
CV38	76212102	CERAMIC DISC, 50V B 1000PF K
CV39	76212102	CERAMIC DISC, 50V B 1000PF K
⚠ Z450	76083014	CR-BLOCK, TPA5011AH

RESISTORS

R240	76367153	CARBON FILM, 1/6W 15K OHM G
R241	76367183	CARBON FILM, 1/6W 18K OHM G
R242	76367183	CARBON FILM, 1/6W 18K OHM G
R243	76367273	CARBON FILM, 1/6W 27K OHM G
R244	76366124	CARBON FILM, 1/6W 120K OHM J
R245	76366472	CARBON FILM, 1/6W 4.7K OHM J
R246	76366472	CARBON FILM, 1/6W 4.7K OHM J
R247	76366102	CARBON FILM, 1/6W 1K OHM J
R249	76366104	CARBON FILM, 1/6W 100K OHM J
R264	76366750	CARBON FILM, 1/6W 75 OHM J
R265	76366750	CARBON FILM, 1/6W 75 OHM J
R266	76366750	CARBON FILM, 1/6W 75 OHM J
R286	76366750	CARBON FILM, 1/6W 75 OHM J
R287	76366750	CARBON FILM, 1/6W 75 OHM J
R288	76366750	CARBON FILM, 1/6W 75 OHM J
R302	76366101	CARBON FILM, 1/6W 100 OHM J
R305	76322109	OXIDE METAL FILM, 1W 1 OHM J
R306	76011822	CHIP, 1/20W 8.2K OHM J
R307	76011101	CHIP, 1/20W 100 OHM J
R308	76011101	CHIP, 1/20W 100 OHM J
R311	76366563	CARBON FILM, 1/6W 56K OHM J
R312	76011123	CHIP, 1/20W 12K OHM J
R313	76011102	CHIP, 1/20W 1K OHM J

Location No.	Parts No.	Description
R314	76011473	CHIP, 1/20W 47K OHM J
R315	76011681	CHIP, 1/20W 680 OHM J
R321	76011472	CHIP, 1/20W 4.7K OHM J
R322	76011101	CHIP, 1/20W 100 OHM J
R325	76011472	CHIP, 1/20W 4.7K OHM J
R330	76000633	METAL FILM, 1/4W 10K OHM F
R331	76000633	METAL FILM, 1/4W 10K OHM F
R334	76011102	CHIP, 1/20W 1K OHM J
R335	76011102	CHIP, 1/20W 1K OHM J
R336	76011102	CHIP, 1/20W 1K OHM J
R337	76321129	OXIDE METAL FILM, 1/2W 1.2 OHM J
R338	76011153	CHIP, 1/2OW 15K OHM J
R340	76366103	CARBON FILM, 1/6W 10K OHM J
R341	76011183	CHIP, 1/20W 18K OHM J
R343	76011102	CHIP, 1/20W 1K OHM J
R344	76382151	OXIDE METAL FILM, 1W 150 OHM J
R345	76000445	CHIP JUMPER, 1608TYPE
R346	76382391	OXIDE METAL FILM, 1W 390 OHM J
R348	76011473	CHIP, 1/20W 47K OHM J
R349	76011392	CHIP, 1/20W 3.9K OHM J
R350	76011123	CHIP, 1/20W 12K OHM J
R355	76366103	CARBON FILM, 1/6W 10K OHM J
R360	76011562	CHIP, 1/20W 5.6K OHM J
R361	76011104	CHIP, 1/20W 100K OHM J
R362	76011473	CHIP, 1/20W 47K OHM J
R363	76011103	CHIP, 1/20W 10K OHM J
R364	76011331	CHIP, 1/20W 330 OHM J
R365	76011682	CHIP, 1/20W 6.8K OHM J
R366	76366222	CARBON FILM, 1/6W 2.2K OHM J
R367	76011392	CHIP, 1/20W 3.9K OHM J
R369	76366103	CARBON FILM, 1/6W 10K OHM J
R370	76366102	CARBON FILM, 1/6W 1K OHM J
R371	76011823	CHIP, 1/20W 82K OHM J
R372	76011332	CHIP, 1/20W 3.3K OHM J
R373	76011823	CHIP, 1/20W 82K OHM J
R374	76011104	CHIP, 1/20W 100K OHM J
R375	76011153	CHIP, 1/2OW 15K OHM J
R376	76011333	CHIP, 1/20W 33K OHM J
R378	76011103	CHIP, 1/20W 10K OHM J
R390	76382561	OXIDE METAL FILM, 1W 560 OHM J
R391	76382561	OXIDE METAL FILM, 1W 560 OHM J
R392	76382561	OXIDE METAL FILM, 1W 560 OHM J
R403	76553101	OXIDE METAL FILM, 1W 100 OHM J
R404	76011182	CHIP, 1/20W 1.8K OHM J
R405	76366101	CARBON FILM, 1/6W 100 OHM J
R406	76382682	OXIDE METAL FILM, 1W 6.8K OHM J
R407	76381100	OXIDE METAL FILM, 1/2W 10 OHM J
R409	76555220	OXIDE METAL FILM, 3W 22 OHM J
R410	76555220	OXIDE METAL FILM, 3W 22 OHM J
R411	76323229	OXIDE METAL FILM, 2W 2.2 OHM J
R412	76383153	OXIDE METAL FILM, 2W 15K OHM J
R413	76366101	CARBON FILM, 1/6W 100 OHM J
R414	76019259	FUSIBLE, 1/4W 27 OHM G
R415	76011102	CHIP, 1/20W 1K OHM J
R416	76383151	OXIDE METAL FILM, 2W 150 OHM J
R417	76366222	CARBON FILM, 1/6W 2.2K OHM J
R418	76011103	CHIP, 1/20W 10K OHM J
R419	76011103	CHIP, 1/20W 10K OHM J
R420	76366103	CARBON FILM, 1/6W 10K OHM J
R421	76366223	CARBON FILM, 1/6W 22K OHM J
R422	76011223	CHIP, 1/20W 22K OHM J
R423	76942102	CARBON COMPOSITION, 1/2W 1K OHM J
R424	76376104	CARBON FILM, 1/2W 100K OHM J
R425	76376104	CARBON FILM, 1/2W 100K OHM J
R426	76366101	CARBON FILM, 1/6W 100 OHM J
R427	76011101	CHIP, 1/20W 100 OHM J
R428	76377224	CARBON FILM, 1W 220K OHM J
R429	76942102	CARBON COMPOSITION, 1/2W 1K OHM J
R431	76383102	OXIDE METAL FILM, 2W 1K OHM J
R432	76376274	CARBON FILM, 1/2W 270K OHM J
R433	76376274	CARBON FILM, 1/2W 270K OHM J
R434	76376274	CARBON FILM, 1/2W 270K OHM J
R435	76366332	CARBON FILM, 1/6W 3.3K OHM J
R436	76366473	CARBON FILM, 1/6W 47K OHM J
R437	76011223	CHIP, 1/20W 22K OHM J
R438	76011102	CHIP, 1/20W 1K OHM J

Location No.	Parts No.	Description
R439	76011103	CHIP, 1/20W 10K OHM J
R440	76011103	CHIP, 1/20W 10K OHM J
R441	76533331	FUSIBLE, 2W 330 OHM J
R443	76310109	OXIDE METAL FILM, 1/2W 1 OHM J
R444	76322398	OXIDE METAL FILM, 1W 0.39 OHM J
R446	76011103	CHIP, 1/20W 10K OHM J
R447	76382473	OXIDE METAL FILM, 1W 47K OHM J
R448	76366562	CARBON FILM, 1/6W 5.6K OHM J
R449	76366152	CARBON FILM, 1/6W 1.5K OHM J
R466	76366433	CARBON FILM, 1/6W 43K OHM J
R467	76011221	CHIP, 1/20W 220 OHM J
R469	76011101	CHIP, 1/20W 100 OHM J
R470	76322478	OXIDE METAL FILM, 1W 0.47 OHM J
R471	76366224	CARBON FILM, 1/6W 220K OHM J
R472	76011101	CHIP, 1/20W 100 OHM J
R473	76011223	CHIP, 1/20W 22K OHM J
R474	76376393	CARBON FILM, 1/2W 39K OHM J
R475	76366101	CARBON FILM, 1/6W 100 OHM J
R476	76011471	CHIP, 1/20W 470 OHM J
⚠ R477	76998331	CHIP, 1/16W 330 OHM D
R478	76011102	CHIP, 1/20W 1K OHM J
R480	76011473	CHIP, 1/20W 47K OHM J
R481	76366103	CARBON FILM, 1/6W 10K OHM J
R482	76011103	CHIP, 1/20W 10K OHM J
R483	76000445	CHIP JUMPER, 1608TYPE
R485	76011681	CHIP, 1/20W 680 OHM J
R486	76011472	CHIP, 1/20W 4.7K OHM J
R487	76552271	OXIDE METAL FILM, 1/2W 270 OHM J
R488	76552151	OXIDE METAL FILM, 1/2W 150 OHM J
R489	76011102	CHIP, 1/20W 1K OHM J
R490	76552331	OXIDE METAL FILM, 1/2W 330 OHM J
R491	76011222	CHIP, 1/20W 2.2K OHM J
⚠ R492	76998102	CHIP, 1/16W 1K OHM
⚠ R493	76998391	CHIP, 1/16W 390 OHM
⚠ R494	76998471	CHIP, 1/16W 470 OHM
R495	76011333	CHIP, 1/20W 33K OHM J
R496	76011103	CHIP, 1/20W 10K OHM J
R497	76011100	CHIP, 1/20W 10 OHM J
R498	76011103	CHIP, 1/20W 10K OHM J
R499	76011102	CHIP, 1/20W 1K OHM J
R513	76366101	CARBON FILM, 1/6W 100 OHM J
R515	76366103	CARBON FILM, 1/6W 10K OHM J
R601	76011822	CHIP, 1/20W 8.2K OHM J
R602	76011822	CHIP, 1/20W 8.2K OHM J
R603	76011102	CHIP, 1/20W 1K OHM J
R604	76011102	CHIP, 1/20W 1K OHM J
R609	76011563	CHIP, 1/20W 56K OHM J
R610	76011273	CHIP, 1/20W 27K OHM J
R611	76011103	CHIP, 1/20W 10K OHM J
R612	76011222	CHIP, 1/20W 2.2K OHM J
R613	76011223	CHIP, 1/20W 22K OHM J
R614	76011103	CHIP, 1/20W 10K OHM J
R615	76011104	CHIP, 1/20W 100K OHM J
R616	76011822	CHIP, 1/20W 8.2K OHM J
R626	76011223	CHIP, 1/20W 22K OHM J
R627	76011223	CHIP, 1/20W 22K OHM J
R661	76011102	CHIP, 1/20W 1K OHM J
R662	76011333	CHIP, 1/20W 33K OHM J
R663	76011822	CHIP, 1/20W 8.2K OHM J
R665	76011223	CHIP, 1/20W 22K OHM J
R666	76011473	CHIP, 1/20W 47K OHM J
R667	76011223	CHIP, 1/20W 22K OHM J
R668	76011473	CHIP, 1/20W 47K OHM J
R671	76011102	CHIP, 1/20W 1K OHM J
R672	76011333	CHIP, 1/20W 33K OHM J
R673	76011822	CHIP, 1/20W 8.2K OHM J
R674	76011472	CHIP, 1/20W 4.7K OHM J
R676	76011104	CHIP, 1/20W 100K OHM J
R677	76011104	CHIP, 1/20W 100K OHM J
R681	76011222	CHIP, 1/20W 2.2K OHM J
R682	76011473	CHIP, 1/20W 47K OHM J
R683	76011223	CHIP, 1/20W 22K OHM J
R684	76011223	CHIP, 1/20W 22K OHM J
R687	76011103	CHIP, 1/20W 10K OHM J
R688	76011224	CHIP, 1/20W 220K OHM J
R693	76000445	CHIP JUMPER, 1608TYPE

Location No.		Parts No.	Description
R697		76553221	OXIDE METAL FILM, 1W 220 OHM J
R698		76011103	CHIP, 1/20W 10K OHM J
R699		76011103	CHIP, 1/20W 10K OHM J
R810	#1	76007061	CERAMIC COVERED, 2W 1.8 OHM K
	#2	76120001	CEMENT RES 141C 2.1W 1R8 K
	#3	76120001	CEMENT RES 141C 2.1W 1R8 K
	#4	76120001	CEMENT RES 141C 2.1W 1R8 K
R818		76011471	CHIP, 1/20W 470 OHM J
R819		76011103	CHIP, 1/20W 10K OHM J
R840		76552562	OXIDE METAL FILM, 1/2W 5.6K OHM J
R841		76011102	CHIP, 1/20W 1K OHM J
R842		76376563	CARB0N FILM, 1/2W 56K OHM J
R843		76376563	CARB0N FILM, 1/2W 56K OHM J
R844		76011103	CHIP, 1/20W 10K OHM J
R845		76366102	CARBON FILM, 1/6W 1K OHM J
R849		76011101	CHIP, 1/20W 100 OHM J
R854		76381150	OXIDE METAL FILM, 1/2W 15 OHM J
R860		76383473	OXIDE METAL FILM, 2W 47K OHM J
R862		76321689	OXIDE METAL FILM, 1/2W 6.8 OHM J
R864		76552102	OXIDE METAL FILM, 1/2W 1K OHM J
R865		76552390	OXIDE METAL FILM, 1/2W 39 OHM J
R866		76366472	CARBON FILM, 1/6W 4.7K OHM J
R867		76366223	CARBON FILM, 1/6W 22K OHM J
R868		76552470	OXIDE METAL FILM, 1/2W 47 OHM J
R870		76381151	OXIDE METAL FILM, 1/2W 150 OHM J
R871		76382680	OXIDE METAL FILM, 1W 68 OHM J
R873		76552100	OXIDE METAL FILM, 1/2W 10 OHM J
R874		76366150	CARBON FILM, 1/6W 15 OHM J
R881		76011102	CHIP, 1/20W 1K OHM J
R883		76381102	OXIDE METAL FILM, 1/2W 1K OHM J
R885		76366471	CARBON FILM, 1/6W 470 OHM J
R893		76011472	CHIP, 1/20W 4.7K OHM J
R894		76011103	CHIP, 1/20W 10K OHM J
⚠ R899		76010001	CARBON FILM, 1/2W 3.9M OHM J
R900		76000892	FUSIBLE, 1W 1.2 OHM J
R901		76366331	CARBON FILM, 1/6W 330 OHM J
R903		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R905		76872180	CHIP, 1/16W 18 OHM J
R906		76872271	CHIP, 1/16W 270 OHM J
R908		76872560	CHIP, 1/16W 56 OHM J
R909		76872270	CHIP, 1/16W 27 OHM J
R910		76322568	OXIDE METAL FILM, 1W 0.56 OHM J
R911		76366331	CARBON FILM, 1/6W 330 OHM J
R913		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R915		76872270	CHIP, 1/16W 27 OHM J
R916		76872271	CHIP, 1/16W 270 OHM J
R918		76872560	CHIP, 1/16W 56 OHM J
R919		76872180	CHIP, 1/16W 18 OHM J
R920		76366222	CARBON FILM, 1/6W 2.2K OHM J
R921		76366331	CARBON FILM, 1/6W 330 OHM J
R923		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R925		76872330	CHIP, 1/16W 33 OHM J
R926		76872271	CHIP, 1/16W 270 OHM J
R928		76872680	CHIP, 1/16W 68 OHM J
R929		76872180	CHIP, 1/16W 18 OHM J
R930		76366222	CARBON FILM, 1/6W 2.2K OHM J
R931		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R938		76366150	CARBON FILM, 1/6W 15 OHM J
R944		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R945		76366150	CARBON FILM, 1/6W 15 OHM J
R948		76366222	CARBON FILM, 1/6W 2.2K OHM J
R950		76366222	CARBON FILM, 1/6W 2.2K OHM J
R951		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R958		76366150	CARBON FILM, 1/6W 15 OHM J
R961		76872182	CHIP, 1/16W 1.8K OHM J
R962		76872182	CHIP, 1/16W 1.8K OHM J
R963		76872100	CHIP, 1/16W 10 OHM J
R964		76872332	CHIP, 1/16W 3.3K OHM J
R965		76872101	CHIP, 1/16W 100 OHM J
R966		76872122	CHIP, 1/16W 1.2K OHM J
R967		76872122	CHIP, 1/16W 1.2K OHM J
R968		76366222	CARBON FILM, 1/6W 2.2K OHM J
R969		76872122	CHIP, 1/16W 1.2K OHM J
R970		76872122	CHIP, 1/16W 1.2K OHM J
R971		76872152	CHIP, 1/16W 1.5K OHM J
R978		76366222	CARBON FILM, 1/6W 2.2K OHM J

Location No.	Parts No.	Description
R987	76872101	CHIP, 1/16W 100 OHM J
R988	76366222	CARBON FILM, 1/6W 2.2K OHM J
R991	76366222	CARBON FILM, 1/6W 2.2K OHM J
R992	76366222	CARBON FILM, 1/6W 2.2K OHM J
R4430	76381150	OXIDE METAL FILM, 1/2W 15 OHM J
R4431	76366102	CARBON FILM, 1/6W 1K OHM J
R7102	76872681	CHIP, 1/16W 680 OHM J
R7103	76872102	CHIP, 1/16W 1K OHM J
R7104	76872102	CHIP, 1/16W 1K OHM J
R7105	76871221	CHIP, 1/8W 220 OHM J
R7106	76871221	CHIP, 1/8W 220 OHM J
R7107	76872101	CHIP, 1/16W 100 OHM J
R7108	76872332	CHIP, 1/16W 3.3K OHM J
R7109	76872333	CHIP, 1/16W 33K OHM J
R7110	76872273	CHIP, 1/16W 27K OHM J
R7111	76872333	CHIP, 1/16W 33K OHM J
R7112	76872151	CHIP, 1/16W 150 OHM J
R7113	76872751	CHIP, 1/16W 750 OHM J
R7114	76872681	CHIP, 1/16W 680 OHM J
R7115	76871471	CHIP, 1/8W 470 OHM J
R7116	76871471	CHIP, 1/8W 470 OHM J
R7117	76872101	CHIP, 1/16W 100 OHM J
R7118	76872101	CHIP, 1/16W 100 OHM J
R7119	76871100	CHIP, 1/8W 10 OHM J
R7120	76871100	CHIP, 1/8W 10 OHM J
R7121	76871100	CHIP, 1/8W 10 OHM J
R7122	76871100	CHIP, 1/8W 10 OHM J
R7123	76871100	CHIP, 1/8W 10 OHM J
R7124	76871100	CHIP, 1/8W 10 OHM J
R7125	76871100	CHIP, 1/8W 10 OHM J
R7126	76871100	CHIP, 1/8W 10 OHM J
R7127	76552331	OXIDE METAL FILM, 1/2W 330 OHM J
R7128	76872751	CHIP, 1/16W 750 OHM J
R7129	76872122	CHIP, 1/16W 1.2K OHM J
R7130	76872683	CHIP, 1/16W 68K OHM J
R7131	76872683	CHIP, 1/16W 68K OHM J
R7132	76872751	CHIP, 1/16W 750 OHM J
R7133	76872122	CHIP, 1/16W 1.2K OHM J
R7134	76872102	CHIP, 1/16W 1K OHM J
R7135	76553100	OXIDE METAL FILM, 1W 10 OHM J
R7136	76321229	OXIDE METAL FILM, 1/2W 2.2 OHM J
R7137	76553100	OXIDE METAL FILM, 1W 10 OHM J
R7138	76322229	OXIDE METAL FILM, 1W 2.2 OHM J
R7139	76554221	OXIDE METAL FILM, 2W 220 OHM J
R7140	76872220	CHIP, 1/16W 22 OHM J
R7141	76872220	CHIP, 1/16W 22 OHM J
R7701	76011392	CHIP, 1/20W 3.9K OHM J
R7702	76000445	CHIP JUMPER, 1608TYPE
R7707	76011472	CHIP, 1/20W 4.7K OHM J
R7708	76011472	CHIP, 1/20W 4.7K OHM J
R7710	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7711	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7712	76011472	CHIP, 1/20W 4.7K OHM J
R7713	76011472	CHIP, 1/20W 4.7K OHM J
R7715	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7716	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7717	76011472	CHIP, 1/20W 4.7K OHM J
R7718	76011472	CHIP, 1/20W 4.7K OHM J
R7720	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7721	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7722	76011472	CHIP, 1/20W 4.7K OHM J
R7723	76011472	CHIP, 1/20W 4.7K OHM J
R7725	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7726	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7727	76011472	CHIP, 1/20W 4.7K OHM J
R7728	76011472	CHIP, 1/20W 4.7K OHM J
R7730	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7731	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7732	76011472	CHIP, 1/20W 4.7K OHM J
R7733	76011472	CHIP, 1/20W 4.7K OHM J
R7735	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7736	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7743	76322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7744	76322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7745	76011101	CHIP, 1/20W 100 OHM J
R7746	76011101	CHIP, 1/20W 100 OHM J

Location No.	Parts No.	Description
R7747	76011221	CHIP, 1/20W 220 OHM J
R7748	76011221	CHIP, 1/20W 220 OHM J
R7749	76011102	CHIP, 1/20W 1K OHM J
R7750	76011332	CHIP, 1/20W 3.3K OHM J
R7751	76011153	CHIP, 1/2OW 15K OHM J
R7752	76011822	CHIP, 1/20W 8.2K OHM J
R7753	76011101	CHIP, 1/20W 100 OHM J
R7754	76011333	CHIP, 1/20W 33K OHM J
R7755	76011153	CHIP, 1/2OW 15K OHM J
R7756	76011153	CHIP, 1/2OW 15K OHM J
R7757	76011681	CHIP, 1/20W 680 OHM J
R7758	76011332	CHIP, 1/20W 3.3K OHM J
R7760	76011682	CHIP, 1/20W 6.8K OHM J
R7761	76011123	CHIP, 1/20W 12K OHM J
R7762	76011682	CHIP, 1/20W 6.8K OHM J
R7763	76011123	CHIP, 1/20W 12K OHM J
R7765	76011103	CHIP, 1/20W 10K OHM J
R7766	76366103	CARBON FILM, 1/6W 10K OHM J
R7767	76011103	CHIP, 1/20W 10K OHM J
R7768	76011103	CHIP, 1/20W 10K OHM J
R7769	76011103	CHIP, 1/20W 10K OHM J
R7770	76011103	CHIP, 1/20W 10K OHM J
R7771	76011103	CHIP, 1/20W 10K OHM J
R7772	76011473	CHIP, 1/20W 47K OHM J
R7773	76011103	CHIP, 1/20W 10K OHM J
R7774	76011103	CHIP, 1/20W 10K OHM J
R7801	76383471	OXIDE METAL FILM, 2W 470 OHM J
R7802	76383681	OXIDE METAL FILM, 2W 680 OHM J
R7880	76011221	CHIP, 1/20W 220 OHM J
R7881	76011472	CHIP, 1/20W 4.7K OHM J
R7882	76011103	CHIP, 1/20W 10K OHM J
R7883	76011103	CHIP, 1/20W 10K OHM J
R7884	76011103	CHIP, 1/20W 10K OHM J
R7885	76366472	CARBON FILM, 1/6W 4.7K OHM J
R7886	76011104	CHIP, 1/20W 100K OHM J
R7887	76366103	CARBON FILM, 1/6W 10K OHM J
R7890	76011331	CHIP, 1/20W 330 OHM J
R7891	76011331	CHIP, 1/20W 330 OHM J
R7892	76366472	CARBON FILM, 1/6W 4.7K OHM J
R7893	76011472	CHIP, 1/20W 4.7K OHM J
R7910	76011221	CHIP, 1/20W 220 OHM J
R7911	76011221	CHIP, 1/20W 220 OHM J
R7912	76011101	CHIP, 1/20W 100 OHM J
R7913	76011101	CHIP, 1/20W 100 OHM J
R7931	76000445	CHIP JUMPER, 1608TYPE
R9501	76872101	CHIP, 1/16W 100 OHM J
R9503	76872122	CHIP, 1/16W 1.2K OHM J
R9504	76872122	CHIP, 1/16W 1.2K OHM J
R9607	76872101	CHIP, 1/16W 100 OHM J
R9608	76872122	CHIP, 1/16W 1.2K OHM J
R9609	76872122	CHIP, 1/16W 1.2K OHM J
RA71	76366273	CARBON FILM, 1/6W 27K OHM J
RA72	76366153	CARBON FILM, 1/6W 15K OHM J
RA73	76366822	CARBON FILM, 1/6W 8.2K OHM J
RA76	76366822	CARBON FILM, 1/6W 8.2K OHM J
RA77	76366153	CARBON FILM, 1/6W 15K OHM J
RA78	76366273	CARBON FILM, 1/6W 27K OHM J
RA79	76366823	CARBON FILM, 1/6W 82K OHM J
RB01	76366391	CARBON FILM, 1/6W 390 OHM J
RB04	76366473	CARBON FILM, 1/6W 47K OHM J
RB05	76366102	CARBON FILM, 1/6W 1K OHM J
RB15	24366471	CARBON FILM, 1/6W 470 OHM J
RB19	24366470	CARBON FILM, 1/6W 47 OHM J
RB51	24366224	CARBON FILM, 1/6W 220K OHM J
RB52	24366123	CARBON FILM, 1/6W 12K OHM J
RB53	24366123	CARBON FILM, 1/6W 12K OHM J
RB54	24366123	CARBON FILM, 1/6W 12K OHM J
RB55	24366224	CARBON FILM, 1/6W 220K OHM J
RB56	24366151	CARBON FILM, 1/6W 150 OHM J
RB57	24366103	CARBON FILM, 1/6W 10K OHM J
RB58	24366103	CARBON FILM, 1/6W 10K OHM J
RB59	24366122	CARBON FILM, 1/6W 1.2K OHM J
RB60	24366224	CARBON FILM, 1/6W 220K OHM J
RB61	24366100	CARBON FILM, 1/6W 10 OHM J
RB62	24366272	CARBON FILM, 1/6W 2.7K OHM J
RB63	24366271	CARBON FILM, 1/6W 270 OHM J

Location No.	Parts No.	Description
RB67	24366221	CARBON FILM, 1/6W 220 OHM J
RB69	24366272	CARBON FILM, 1/6W 2.7K OHM J
RB70	24366331	CARBON FILM, 1/6W 330 OHM J
RB504	76366104	CARBON FILM, 1/6W 100K OHM J
RB505	76366101	CARBON FILM, 1/6W 100 OHM J
RB506	76366390	CARBON FILM, 1/6W 39 OHM J
RB561	76366101	CARBON FILM, 1/6W 100 OHM J
RB562	76366104	CARBON FILM, 1/6W 100K OHM J
RB563	76366390	CARBON FILM, 1/6W 39 OHM J
RB567	76366223	CARBON FILM, 1/6W 22K OHM J
RV20	76366750	CARBON FILM, 1/6W 75 OHM J
RV21	76366750	CARBON FILM, 1/6W 75 OHM J
RV22	76366750	CARBON FILM, 1/6W 75 OHM J
RV23	76366101	CARBON FILM, 1/6W 100 OHM J
RV33	76366750	CARBON FILM, 1/6W 75 OHM J
RV34	76366750	CARBON FILM, 1/6W 75 OHM J
RV35	76366750	CARBON FILM, 1/6W 75 OHM J
RV36	76366750	CARBON FILM, 1/6W 75 OHM J
RV37	76366750	CARBON FILM, 1/6W 75 OHM J
RV40	76366750	CARBON FILM, 1/6W 75 OHM J
RV61	76366101	CARBON FILM, 1/6W 100 OHM J
RV85	76366471	CARBON FILM, 1/6W 470 OHM J
RV86	76366471	CARBON FILM, 1/6W 470 OHM J
RV89	76366680	CARBON FILM, 1/6W 68 OHM J
GJ102	76000445	CHIP JUMPER, 1608TYPE
GJ105	76000445	CHIP JUMPER, 1608TYPE
GJ107	76000445	CHIP JUMPER, 1608TYPE
GJ911	76000445	CHIP JUMPER, 1608TYPE
GR31	76000445	CHIP JUMPER, 1608TYPE
GR32	76000445	CHIP JUMPER, 1608TYPE
GR103	76000445	CHIP JUMPER, 1608TYPE
GR601	76000445	CHIP JUMPER, 1608TYPE
COILS & TRANSFORMERS		
L302	23248400	COIL, CHOKE, TLN3299D
L303	23248400	COIL, CHOKE, TLN3299D
L304	23103302	FERRITE CHOKE, TEM2011AH
L305	23103307	FERRITE CHOKE, TEM2014AA
L310	23289028	COIL, PEAKING, TRF4101AT
L401	23289009	COIL, PEAKING, TRF4560AF
⚠ L402	23248455	COIL, CHOKE, TLN3534AH
L403	23103302	FERRITE CHOKE, TEM2011AH
L406	23248413	COIL, CHOKE, TLN3351AD
L407	23103307	FERRITE CHOKE, TEM2014AA
L408	23103307	FERRITE CHOKE, TEM2014AA
⚠ L441	23233136	COIL, LINEARITY, TLN2222AH
⚠ L462	23231431	COIL, DEFLECTION YOKE, TDY707RD
⚠ L463	23231431	COIL, DEFLECTION YOKE, TDY707RD
⚠ L464	23231431	COIL, DEFLECTION YOKE, TDY707RD
L472	23102564	COIL, CPM29.1VM6T, MAG-1136
L473	23102564	COIL, CPM29.1VM6T, MAG-1136
L474	23102564	COIL, CPM29.1VM6T, MAG-1136
L490	23289981	COIL, PEAKING, TRF4330AZ
L840	23289025	COIL, PEAKING, TRF4330AT
L841	23103304	FERRITE CHOKE, TEM2011AA
L850	23103304	FERRITE CHOKE, TEM2011AA
L851	23103304	FERRITE CHOKE, TEM2011AA
L852	23103304	FERRITE CHOKE, TEM2011AA
L854	23103304	FERRITE CHOKE, TEM2011AA
L861	23103304	FERRITE CHOKE, TEM2011AA
L862	23103304	FERRITE CHOKE, TEM2011AA
L864	23103304	FERRITE CHOKE, TEM2011AA
L880	23103304	FERRITE CHOKE, TEM2011AA
L881	23103304	FERRITE CHOKE, TEM2011AA
L885	23248400	COIL, CHOKE, TLN3299D
L886	23103304	FERRITE CHOKE, TEM2011AA
L887	23103304	FERRITE CHOKE, TEM2011AA
L888	23248446	COIL, CHOKE, TLN3462AH
L891	23103304	FERRITE CHOKE, TEM2011AA
L892	23103304	FERRITE CHOKE, TEM2011AA
L893	23103304	FERRITE CHOKE, TEM2011AA
L894	23248432	COIL, CHOKE, TLN3499AH
L895	23248432	COIL, CHOKE, TLN3499AH
L896	23248432	COIL, CHOKE, TLN3499AH
L902	23289993	COIL, PEAKING, TRF41R5AF
L904	23289989	COIL, PEAKING, TRF4120AF

Location No.	Parts No.	Description
L905	23289014	COIL, PEAKING, TRF46R8AF
L911	23289996	COIL, PEAKING, TRF4220AF
L913	23289993	COIL, PEAKING, TRF41R5AF
L915	23289014	COIL, PEAKING, TRF46R8AF
L916	23289989	COIL, PEAKING, TRF4120AF
L923	23289993	COIL, PEAKING, TRF41R5AF
L924	23289989	COIL, PEAKING, TRF4120AF
L925	23289014	COIL, PEAKING, TRF46R8AF
L7101	23289022	COIL, PEAKING, TRF4100AT
L7102	23103304	FERRITE CHOKE, TEM2011AA
L7103	23103304	FERRITE CHOKE, TEM2011AA
L7104	23103323	FERRITE CORE, HC5-035
L7710	23248400	COIL, CHOKE, TLN3299D
L7711	23248400	COIL, CHOKE, TLN3299D
LB51	23237987	COIL, PEAKING, TRF4100AC
LV13	23289985	COIL, PEAKING, TRF4100AF
LV20	23221156	COIL, PEAKING, TRF4560AJ
LV36	23289009	COIL, PEAKING, TRF4560AF
LV37	23289009	COIL, PEAKING, TRF4560AF
T400	23224401	TRANSFORMER, FOCUS, TLN2220AH
T401	23224396	TRANSFORMER, TLN1080AH
T461A	23192972	ANODE CAP ASSY, TCC5609AT
T461Z	23236941	TRANSFORMER, HORIZ OUTPUT, SERVICE, TFB3094ZD
⚠ T801	23211836	COIL, LINE FILTER, TRF3197AH
⚠ T840	23217790	TRANSFORMER, CONVERTER TPW3425BH
⚠ T862	23217669	TRANSFORMER, CONVERTER TPW3549AS
T865	23224392	TRANSFORMER, PULSE TLN2229AH
Z801	23103840	FERRITE CORE, TFE1013
ZV60	23103778	FERRITE CORE, TFE1008
SEMICONDUCTORS		
Q241	23205342	TRANSISTOR, 2SC2482(F)
Q301	23085526	IC, LA7833-S-E
Q302	23085309	IC, TA1317ANG
Q305	23205346	TRANSISTOR, KTA2014Y/P
Q306	23085872	IC, OPE-AMP 14PIN DIP TA75902PG(5,J)
Q370	23205347	TRANSISTOR, KTC4075Y/P
Q371	23205346	TRANSISTOR, KTA2014Y/P
Q372	23205347	TRANSISTOR, KTC4075Y/P
Q400	23205370	TRANSISTOR, 2SC4686A(Q)
Q402	23205416	TRANSISTOR, FET, 2SK2962(F)
Q404	23205405	TRANSISTOR, 2SC5859(FA,Q)
Q405	23205346	TRANSISTOR, KTA2014Y/P
Q406	23205347	TRANSISTOR, KTC4075Y/P
⚠ Q408	23205346	TRANSISTOR, KTA2014Y/P
Q409	23205347	TRANSISTOR, KTC4075Y/P
Q410	23205347	TRANSISTOR, KTC4075Y/P
Q411	23205347	TRANSISTOR, KTC4075Y/P
Q420	23205342	TRANSISTOR, 2SC2482(F)
Q425	23205350	TRANSISTOR, FET, 2SK2920(Q)
Q428	23205347	TRANSISTOR, KTC4075Y/P
Q470	23205516	TRANSISTOR, 2SA1320(F)
Q471	23205347	TRANSISTOR, KTC4075Y/P
Q472	23205347	TRANSISTOR, KTC4075Y/P
Q473	23205346	TRANSISTOR, KTA2014Y/P
Q601	23009603	IC, AN7580
Q612	23205346	TRANSISTOR, KTA2014Y/P
Q613	23205347	TRANSISTOR, KTC4075Y/P
Q614	23205327	TRANSISTOR, RN1406(F)
Q661	23205424	TRANSISTOR, KTC2875B/P
Q662	23205424	TRANSISTOR, KTC2875B/P
Q663	23085575	IC, OP AMP, BA4558
Q664	23205325	TRANSISTOR, RN2404(F)
Q681	23205424	TRANSISTOR, KTC2875B/P
Q682	23205424	TRANSISTOR, KTC2875B/P
Q711	23205269	TRANSISTOR, VCBO-160V IC-1.5A 2SA2005
Q712	23205270	TRANSISTOR, VCBO 160V 1.5A 2SC5511
Q751	23135074	IC, STK394-250A
Q752	23135074	IC, STK394-250A
Q765	23205347	TRANSISTOR, KTC4075Y/P
Q766	23205347	TRANSISTOR, KTC4075Y/P
Q767	23205347	TRANSISTOR, KTC4075Y/P
Q768	23205347	TRANSISTOR, KTC4075Y/P
Q769	23085560	IC, TA75S393F(F)
Q782	23085531	IC, NJM79M05FA
Q784	23085424	IC, KIA7805API-U/P

Location No.	Parts No.	Description
Q785	23085596	IC, PST994D
Q794	23085560	IC, TA75S393F(F)
Q795	23085691	IC, TC4066BP(N,F)
Q796	23205347	TRANSISTOR, KTC4075Y/P
Q801	23135066	IC, STRZ4479
Q840	23085559	IC, MIP280
⚠ Q841	23085431	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q842	23085431	IC, PHOTO COUPLER, PS2581L1(D)
Q843	23205347	TRANSISTOR, KTC4075Y/P
Q844	23205347	TRANSISTOR, KTC4075Y/P
⚠ Q862	23085431	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q881	23085524	IC, SE116N, LF4
Q894	23205347	TRANSISTOR, KTC4075Y/P
Q901	23205412	TRANSISTOR, 2SC3942
Q902	23205415	TRANSISTOR, 2SC3950E
Q911	23205412	TRANSISTOR, 2SC3942
Q912	23205415	TRANSISTOR, 2SC3950E
Q913	23205357	TRANSISTOR, KTA1504S Y/P
Q921	23205412	TRANSISTOR, 2SC3942
Q922	23205415	TRANSISTOR, 2SC3950E
Q961	23205358	TRANSISTOR, KTC3875S Y/P
Q962	23205357	TRANSISTOR, KTA1504S Y/P
Q973	23205357	TRANSISTOR, KTA1504S Y/P
Q4430	23205444	TRANSISTOR, 2SC2236-Y(F)
Q7101	23205358	TRANSISTOR, KTC3875S Y/P
Q7102	23205358	TRANSISTOR, KTC3875S Y/P
Q7103	23085635	IC, 2SC3437-Y(TE85L,F)
Q7104	23205312	TRANSISTOR, 2SC1815-GR(F)
Q7105	23205358	TRANSISTOR, KTC3875S Y/P
Q7106	23205358	TRANSISTOR, KTC3875S Y/P
Q7107	23205357	TRANSISTOR, KTA1504S Y/P
Q7108	23205358	TRANSISTOR, KTC3875S Y/P
Q7109	23205357	TRANSISTOR, KTA1504S Y/P
Q7761	23205346	TRANSISTOR, KTA2014Y/P
Q7762	23205347	TRANSISTOR, KTC4075Y/P
Q7763	23205347	TRANSISTOR, KTC4075Y/P
Q7764	23205346	TRANSISTOR, KTA2014Y/P
QB01	23205499	TRANSISTOR, KTC3198 Y/P
QB51	23319808	IC, M5218AP
QB52	23314965	TRANSISTOR, KTC3198 Y
QB53	23314962	TRANSISTOR, KTA1266 Y
QB502	23205307	TRANSISTOR, 2SA562TM-Y(F)
QB508	23205307	TRANSISTOR, 2SA562TM-Y(F)
QB509	23205337	TRANSISTOR, 2SC2878-A(TEM)
QV48	23205499	TRANSISTOR, KTC3198 Y/P
D301	23357755	DIODE, ZENER, MA8075-H
D302	23357366	DIODE, FR105-B5
D303	23357872	DIODE, ZENER, MTZJ15C
D304	23357917	DIODE, SC570A
D305	23357365	DIODE, 1N4004A-B5
D306	23357365	DIODE, 1N4004A-B5
D327	23357861	DIODE, ZENER, MTZJ11A
D333	23357861	DIODE, ZENER, MTZJ11A
D334	23357861	DIODE, ZENER, MTZJ11A
D336	23357745	DIODE, ZENER, MA8056-M
D337	23357745	DIODE, ZENER, MA8056-M
D365	23357755	DIODE, ZENER, MA8075-H
D370	23357703	DIODE, 1SS355
D401	23357510	DIODE, AG01
D402	23357366	DIODE, FR105-B5
D404	23357705	DIODE, ERC06-15
D406	23357366	DIODE, FR105-B5
D411	23357784	DIODE, ZENER, MA8180-M
D412	23357694	DIODE, RP1H
D413	23357694	DIODE, RP1H
D414	23357366	DIODE, FR105-B5
D415	23357366	DIODE, FR105-B5
D418	23357901	DIODE, ZENER, MTZJ33C
D419	23357703	DIODE, 1SS355
D420	23357697	DIODE, 1SS133
D421	23357366	DIODE, FR105-B5
D425	23357366	DIODE, FR105-B5
D426	23357784	DIODE, ZENER, MA8180-M
D450	23357365	DIODE, 1N4004A-B5
D461	23357701	DIODE, FMQ-3GU
D470	23357770	DIODE, ZENER, MA8120-L

Location No.	Parts No.	Description
! D490	23357748	DIODE, ZENER, MA8062-M
D491	23357703	DIODE, 1SS355
D492	23357765	DIODE, ZENER, MA8100-M
D505	23357893	DIODE, ZENER, MTZJ27C
D601	23357703	DIODE, 1SS355
D602	23357703	DIODE, 1SS355
D603	23357703	DIODE, 1SS355
D604	23357703	DIODE, 1SS355
D605	23357703	DIODE, 1SS355
D606	23357703	DIODE, 1SS355
D607	23357703	DIODE, 1SS355
D608	23357703	DIODE, 1SS355
D609	23357703	DIODE, 1SS355
D611	23357703	DIODE, 1SS355
D612	23357703	DIODE, 1SS355
D613	23357703	DIODE, 1SS355
D614	23357703	DIODE, 1SS355
D615	23357703	DIODE, 1SS355
D616	23357703	DIODE, 1SS355
D617	23357703	DIODE, 1SS355
D628	23357771	DIODE, ZENER, MA8120-M
D751	23357104	DIODE, 1SS244
D752	23357104	DIODE, 1SS244
D801	23357712	DIODE, D5SB60, 4009 F05
D840	23362046	DIODE, LN1WBA60 4101
D841	23357746	DIODE, ZENER, MA8056-H
D842	23357738	DIODE, ZENER, MA8047-L
D843	23357366	DIODE, FR105-B5
D844	23357745	DIODE, ZENER, MA8056-M
D845	23357703	DIODE, 1SS355
D846	23357684	DIODE, ZENER, RD3.0ESA B2
D847	23357684	DIODE, ZENER, RD3.0ESA B2
D848	23357703	DIODE, 1SS355
D851	23362051	DIODE, D4SBL20U 4100
D852	23357860	DIODE, RL2Z
D853	23357860	DIODE, RL2Z
D854	23357366	DIODE, FR105-B5
D862	23357366	DIODE, FR105-B5
D864	23357366	DIODE, FR105-B5
D873	23357893	DIODE, ZENER, MTZJ27C
D875	23357852	DIODE, ZENER, MTZJ9.1C
D876	23357905	DIODE, ZENER, MTZJ36C
D878	23357850	DIODE, ZENER, MTZJ9.1A
D879	23357893	DIODE, ZENER, MTZJ27C
⚠ D880	23357828	DIODE, ZENER, MTZJ4.3B
D881	23357703	DIODE, 1SS355
D883	23357105	DIODE, RL2
D884	23357105	DIODE, RL2
D885	23362049	DIODE, D4SBS4 4100
D891	23362136	DIODE, YG801C04RF119
D892	23357408	DIODE, FMX-12S(023-108)
D893	23357408	DIODE, FMX-12S(023-108)
D894	23357703	DIODE, 1SS355
D895	23357748	DIODE, ZENER, MA8062-M
⚠ D899	76019485	VARISTOR, TNR10V431K
D901	23357697	DIODE, 1SS133
D906	23357104	DIODE, 1SS244
D907	23357104	DIODE, 1SS244
D908	23357104	DIODE, 1SS244
D909	23357104	DIODE, 1SS244
D912	23357697	DIODE, 1SS133
D913	23357496	DIODE, 1S1834(Q)
D916	23357104	DIODE, 1SS244
D917	23357104	DIODE, 1SS244
D918	23357104	DIODE, 1SS244
D919	23357104	DIODE, 1SS244
D921	23357697	DIODE, 1SS133
D926	23357104	DIODE, 1SS244
D927	23357104	DIODE, 1SS244
D928	23357104	DIODE, 1SS244
D929	23357104	DIODE, 1SS244
D936	23357496	DIODE, 1S1834(Q)
D940	23357697	DIODE, 1SS133
D941	23357697	DIODE, 1SS133
D942	23357697	DIODE, 1SS133
D943	23357697	DIODE, 1SS133

Location No.	Parts No.	Description
D944	23357697	DIODE, 1SS133
D945	23357697	DIODE, 1SS133
D962	23357748	DIODE, ZENER, MA8062-M
D967	23357496	DIODE, 1S1834(Q)
D4430	23357365	DIODE, 1N4004A-B5
D4431	23357767	DIODE, ZENER, MA8110-L
D7101	23357697	DIODE, 1SS133
D7102	23357697	DIODE, 1SS133
D7730	23357647	DIODE, ZENER, RD6.2ESA B2
D7731	23357647	DIODE, ZENER, RD6.2ESA B2
D7760	23357703	DIODE, 1SS355
D7761	23357629	DIODE, ZENER, RD8.2ESA B2
D7762	23357629	DIODE, ZENER, RD8.2ESA B2
D7763	23357703	DIODE, 1SS355
D7764	23357703	DIODE, 1SS355
D7766	23357703	DIODE, 1SS355
D7790	23357703	DIODE, 1SS355
D7791	23357703	DIODE, 1SS355
D7792	23357703	DIODE, 1SS355
D7793	23357759	DIODE, ZENER, MA8082-M
D7806	23357703	DIODE, 1SS355
DB01	23358606	DIODE, LED RED, SLR-56VC3FPQ
DB03	23358522	DIODE, LED, SIR-56SB3F
DB51	23358573	PHOTO DIODE, PIN 940NM HPI-2FER4
DB52	23118859	DIODE, 1SS133
DB54	23118859	DIODE, 1SS133
DB55	23118859	DIODE, 1SS133
DB56	23118859	DIODE, 1SS133
DB501	23357697	DIODE, 1SS133
DB504	23357697	DIODE, 1SS133
MISCELLANEOUS		
A510	23030815	SCREW, WOOD, PTD #6 X 3/4
B231	23738088	SCREW, BTBW3X12ECO
B233	23738085	SCREW, BTB4X12 ECO
BB10	23713729	SOCKET, B-B 8P 2.5MM
BB11	23713729	SOCKET, B-B 8P 2.5MM
BB20	23713729	SOCKET, B-B 8P 2.5MM
BB21	23713729	SOCKET, B-B 8P 2.5MM
BB51A	23965241	TAPE, CC #12 10MM L30M
BB60	23713014	PLUG, B-B 16P 1.5
BB70	23713810	PLUG , TAC-A46P-B1
BB100	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
BB200	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
⚠ F470	23144389	FUSE, AXIAL 125V 1.6A
⚠ F801	23144319	FUSE, CARTRIDGE, 125V 8A, 5.2X20
F801A	23165433	FUSE HOLDER, 5.2
F801B	23165433	FUSE HOLDER, 5.2
⚠ F840	23144704	FUSE, AXIAL 125V 200MA
⚠ F850	23144712	FUSE, AXIAL 125V 3.0A
⚠ F851	23144714	FUSE, AXIAL 125V 4.0A
⚠ F852	23144714	FUSE, AXIAL 125V 4.0A
⚠ F860	23144392	FUSE, AXIAL 125V 3.15A
⚠ F885	23144715	FUSE, AXIAL 125V 5.0A
⚠ F891	23144714	FUSE, AXIAL 125V 4.0A
⚠ F892	23144710	FUSE, AXIAL 125V 2.0A
H002	23148378	IF MODULE, US BUFFER 6M TRAP, MVUS51A
MF01	23389291	CABLE, FFC P1.25-16-200
MF03	23389290	CABLE, FFC P1.25-29-70
P101	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P102	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P404	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P710	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P711	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P712	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
⚠ P800	23713702	PLUG, 2P 11.88MM W VT
⚠ P801	23372209	POWER CORD, U/C FL 125V7A CMC042P JST
P880A	23713759	PLUG, 8P 2.5MM G, B8B-EH-F1-TV4
P880B	23713759	PLUG, 8P 2.5MM G, B8B-EH-F1-TV4
P913	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P915A	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P915B	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P917	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P918	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P919	23713754	PLUG, 3P 2.5MM G, B3B-EH-F1-TV4
PB22	23368578	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4

Location No.		Parts No.	Description
PB51		23368577	PLUG, 3P 2.5MM G, B3B-EH-F1-TV4
PB501		23365772	JACK, EARPHONE, HSJ1406-01-020
PB502		23365772	JACK, EARPHONE, HSJ1406-01-020
PB503		23713776	PLUG, 3P 2.5MM W, S3B-EH
PV01		23023311	JACK, PIN 2S6P, LAP5030-0111GC
PV02		23023205	JACK, PIN 10P SMK KARI2
PV03		23023211	JACK, PIN 7P SMK KARI04
PV05		23023184	JACK, 1S3P, LAP5100-1502F
PV60		23713761	PLUG, NP 2.5MM G, B10B-EH-F1A
SA01		23344505	SWITCH, PUSH 1C1P
SA02		23344505	SWITCH, PUSH 1C1P
SA03		23344505	SWITCH, PUSH 1C1P
SA04		23344505	SWITCH, PUSH 1C1P
SA05		23344505	SWITCH, PUSH 1C1P
SA06		23344505	SWITCH, PUSH 1C1P
SA07		23344505	SWITCH, PUSH 1C1P
SA09		23344505	SWITCH, PUSH 1C1P
⚠ SR81		23146590	RELAY, DLS5D1-O(M)0.25W
⚠ SR82		23146584	RELAY, DC12V, TV5, DG-3
⚠ V901A		23903180	SOCKET, ISHM62S-WE ICE
V901R	#1	23078357	OTHER, COUPLING R
	#2	23447326	COUPLING, R
	#3	23447981	COUPLING, RS
	#4	23447328	COUPLING, R
⚠ V902A		23903180	SOCKET, ISHM62S-WE ICE
V902G	#1	23078358	OTHER, COUPLING G
	#2	23447324	COUPLING, G
	#3	23447982	COUPLING, GS
	#4	23447324	COUPLING, G
⚠ V903A		23903180	SOCKET, ISHM62S-WE ICE
V903B	#1	23078359	OTHER, COUPLING B
	#2	23447327	COUPLING, B
	#3	23447983	COUPLING, BS
	#4	23447329	COUPLING, B
W661		23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
		23151232	SPEAKER, SPK1235, 160X160 65HZ 8 OHM
W662		23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
		23151232	SPEAKER, SPK1235, 160X160 65HZ 8 OHM
Z101		23103840	FERRITE CORE, TFE1013
Z401		23140203	SPARK GAP, 2.0-3.0KV C-010, AG20PC152F-L3N
⚠ Z410		23110857	FOCUS PACK, TPA6030
Z450A		23507612	CABLE, ANODE, 400LD FBT-C

PC BOARD ASSEMBLIES

✻ E021Z		23764269	PC BOARD ASSY, BACK/AV PU PD1735E1
✻ E022Z		23764270	PC BOARD ASSY, FRONT-CON PU PD1735E2
✻ E023Z		23764271	PC BOARD ASSY, FRONT-IN PU PD1735E3
✻ E024Z		23764272	PC BOARD ASSY, REMOTE PU PD1735E4
✻ E031Z		23764273	PC BOARD ASSY, CRT/SVM/R PU PD1733G1
✻ E032Z		23764274	PC BOARD ASSY, CRT/SVM/G PU PD1733G2
✻ E033Z		23764275	PC BOARD ASSY, CRT/SVM/B PU PD1733G3
✻ E034Z		23764276	PC BOARD ASSY, SVM/DIV PU PD1733G4
✻ E045Z		23788823	PC BOARD ASSY, IR BLASTER PU PD1289
✻ U001		23148433	SCAN CONVERTER MODUL, MHSU12
✻ U401		23764404	PC BOARD ASSY, DEFPOWER PU PD2201A
✻ U601		23764268	PC BOARD ASSY, IF/AUDIO PU PD1731D2
✻ U711		23764267	PC BOARD ASSY, CONVER PU PD1731D1
✻ US01		23764160	PC BOARD ASSY, SPK/CAPA PU PD2065B
✻ UV02		23148418	SCAN CONVERTER MODULE, 05HDMI-01A-G MHDM01A

ACCESSORIES

A701	#1	23067099	CARTON, CARTON
	#2	23067100	CARTON, CARTON
	#3	23015197	CARTON, CARTON
	#4	23064558	CARTON, CARTON
A703	#1	23946479	PACKING, TOP PACKING
	#2	23946481	PACKING, TOP PACKING
	#3	23946500	PACKING, TOP
	#4	23946500	PACKING, TOP
A708	#1	23946478	PACKING, BOTTOM PACKING
	#2	23946480	PACKING, BOTTOM PACKING
	#3	23946499	PACKING, BOTTOM
	#4	23946499	PACKING, BOTTOM
A709	#1	23946483	PACKING, BOTTOM TRAY
	#2	23946187	PACKING, BASE TRAY
	#3	23946211	PACKING, BASE TRAY
	#4	23946211	PACKING, BASE TRAY
⚠ K912		23306626	REMOCON HAND UNIT IR, MTVUSA CT-90232
K913		23306614	REMOCON HAND UNIT
KB01		23000852	REMOCON RECEIVER, PIC-37043TE2
⚠ Y101	#1	23566643	OWNERS MANUAL, ENGLISH/FRENCH
⚠	#2	23566643	OWNERS MANUAL, ENGLISH/FRENCH
⚠	#3	23566732	OWNERS MANUAL, ENGLISH
⚠	#4	23566643	OWNERS MANUAL, ENGLISH/FRENCH

CABINET PARTS

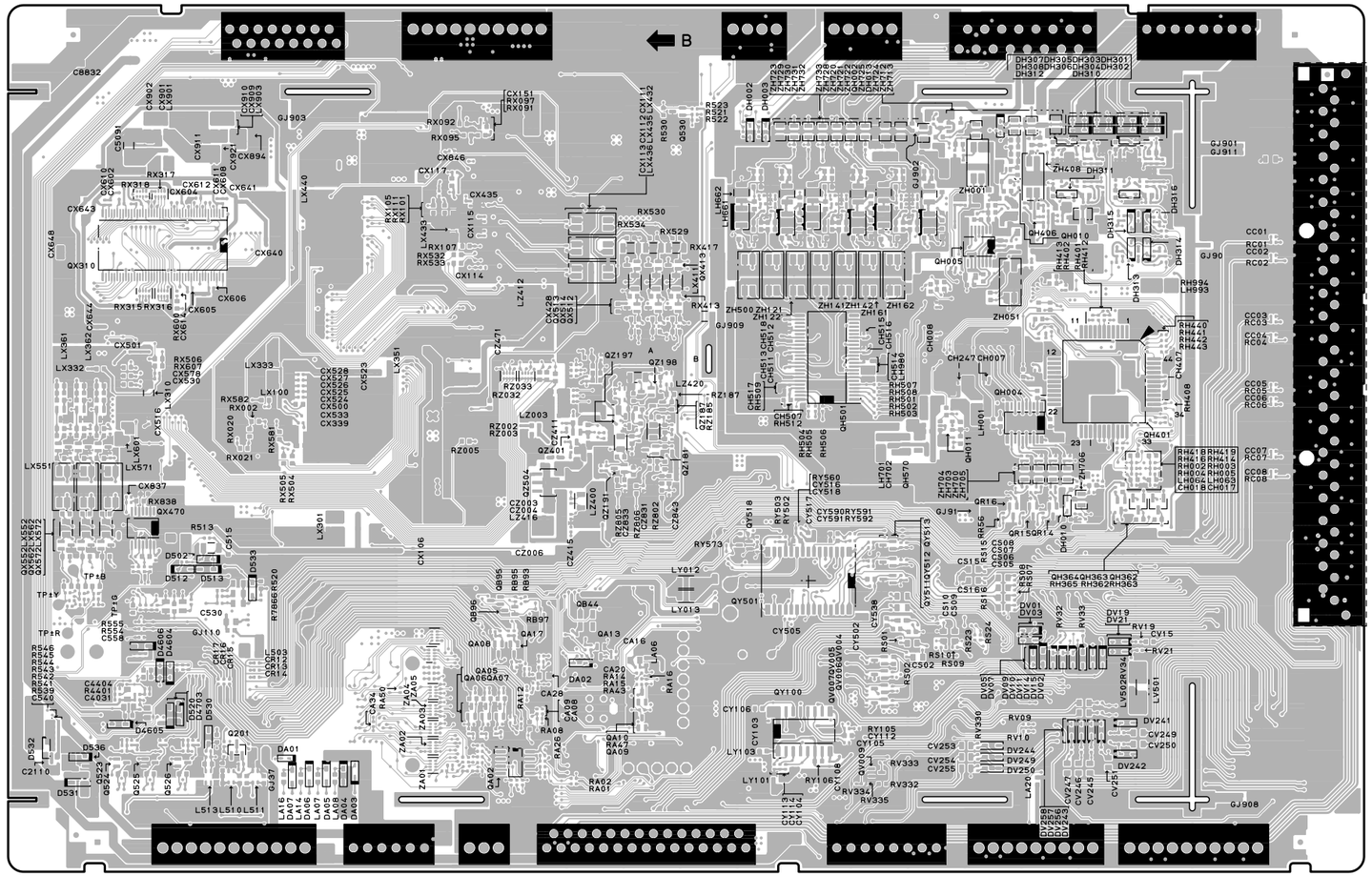
⚠ A001	#1	23429055	CABINET, WOOD
⚠	#2	23429091	CABINET, WOOD
⚠	#3	23429125	CABINET, WOOD CABINET SHIP
⚠	#4	23429125	CABINET, WOOD CABINET SHIP
A102	#1	23527268	GRILLE, SPEAKER GRILLE 51 REG
	#2	23527269	GRILLE, SPEAKER GRILLE 57 REG
	#3	23527279	GRILLE, SPK GRILLE ASSY
	#4	23527279	GRILLE, SPK GRILLE ASSY
A160		23469228	CASTER, TP50H60
⚠ A201	#1	23530779	COVER, BEZEL
⚠	#2	23532728	COVER, BEZEL ASSEY
⚠	#3	23530796	COVER, BEZEL
⚠	#4	23530796	COVER, BEZEL
A202		23450649	PANEL, CONTROL ASSY
A213		23428187	DOOR
A215		23929911	PIECE, SNAP-IN GEAR DAMPER CONNON
A222		23929910	PIECE, FILTER
A223		23445705	BUTTON, POWER BUTTON
A268	#1	23530772	COVER, FRONT COVER
	#2	23530770	COVER, FRONT COVER
	#3	23530770	COVER, FRONT COVER
	#4	23530770	COVER, FRONT COVER
A329	#1	23433231	DECORATIVE, PIECE
	#2	23433230	DECORATIVE, PIECE
	#3	23433233	DECORATIVE, PIECE
	#4	23433233	DECORATIVE, PIECE
A331	#1	23929897	PIECE, POLE BOTTOM LEFT
	#2	23929899	PIECE, POLE BOTTOM LEFT
	#3	23929899	PIECE, POLE BOTTOM LEFT
	#4	23929899	PIECE, POLE BOTTOM LEFT
A332	#1	23929898	PIECE, POLE BOTTOM RIGHT
	#2	23929900	PIECE, POLE BOTTOM RIGHT
	#3	23929900	PIECE, POLE BOTTOM RIGHT
	#4	23929900	PIECE, POLE BOTTOM RIGHT
⚠ A401	#1	23530781	COVER, BACK COVER
⚠	#3	23532525	COVER, BACK COVER
⚠	#4	23532525	COVER, BACK COVER
⚠ A411	#2	23532757	COVER, BACK COVER
⚠ A421		23530812	COVER, REAR BOARD
⚠ A424		23429059	CABINET, BACK BOARD
A721	#1	23943628	PLYETHLENE COVERING
	#2	23943628	PLYETHLENE COVERING
	#3	23943033	PLYETHLENE COVERING
	#4	23943033	PLYETHLENE COVERING
E918	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E929		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
E948	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E959		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
E978	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E989		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
K501	#1	23311088	SCREEN, 51KP LENTICULAR SHEET
	#2	23311128	SCREEN, 57KQ LENTICULAR SHEET
	#3	23311131	SCREEN, 65KQ LENTICULAR SHEET
	#4	23311131	SCREEN, 65KQ LENTICULAR SHEET
K502	#1	23311016	SCREEN, 51KN FRESNEL SHEET SCREEN51KN-F
	#2	23311014	SCREEN, 57KN FRESNEL SHEET SCREEN57KN-F
	#3	23311010	SCREEN, 65KN FRESNEL SHEET SCREEN65KN-F

Location No.		Parts No.	Description
	#4	23311010	SCREEN, 65KN FRESNEL SHEET SCREEN65KN-F
K503	#1	23311065	SCREEN, PROTECTOR 51KN SCR-PRO51KN
	#2	23311038	SCREEN, PROTECTOR 57KN SCR-PRO57KN
	#3	23311962	SCREEN, PROTECTOR 65KM SCR-PRO65KM
	#4	23311962	SCREEN, PROTECTOR 65KM SCR-PRO65KM
K601	#1	23405484	MIRROR, 51WQG 993/720*550 T3
	#2	23405409	MIRROR, 57WL MIRROR57WL
	#3	23405415	MIRROR, 65WL MIRROR65WL
	#4	23405415	MIRROR, 65WL MIRROR65WL

Location No.	Parts No.	Description

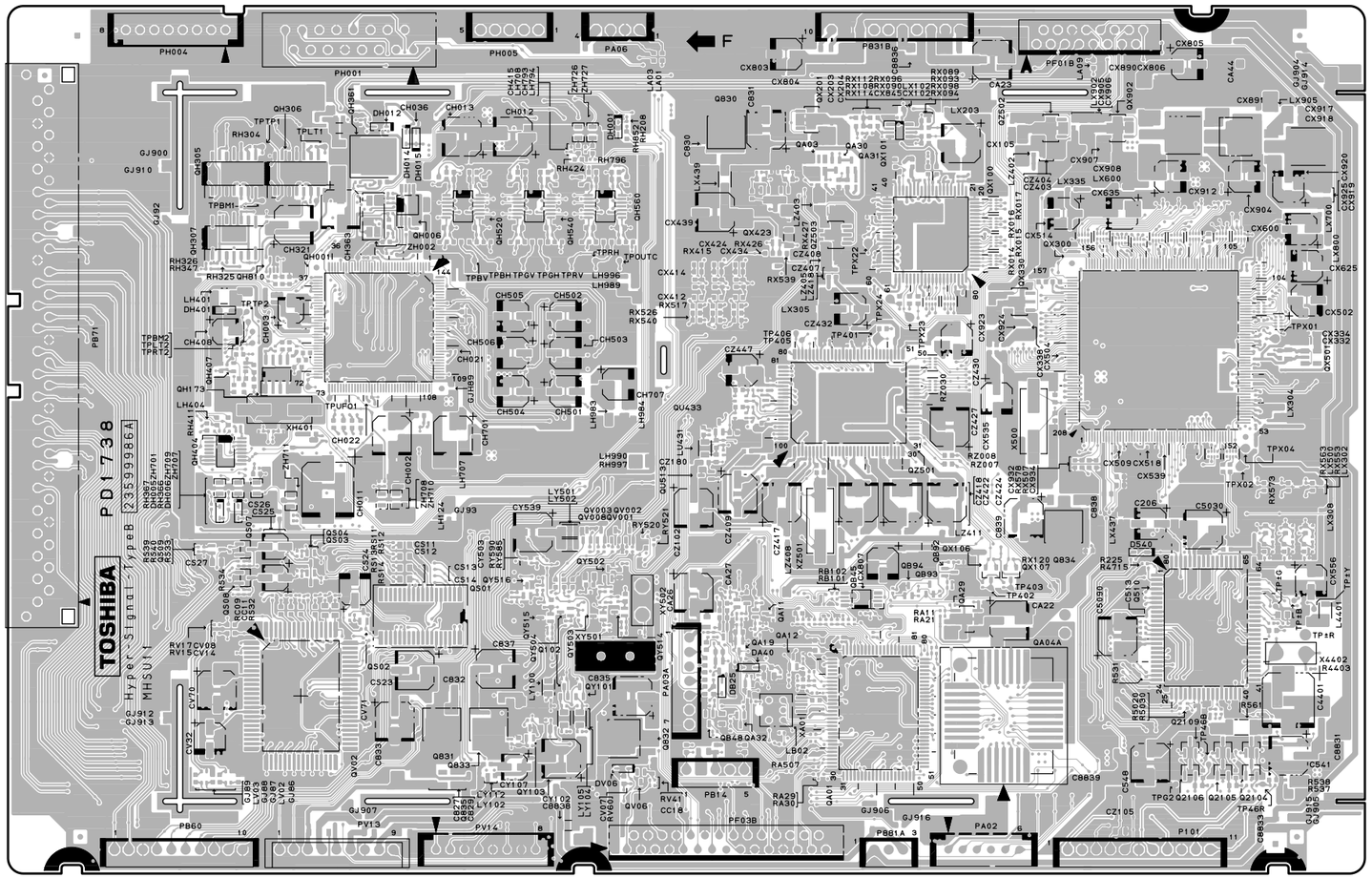
SCAN CONVERTER MODUL, MHSU12 (U001)

BOTTOM (FOIL) SIDE



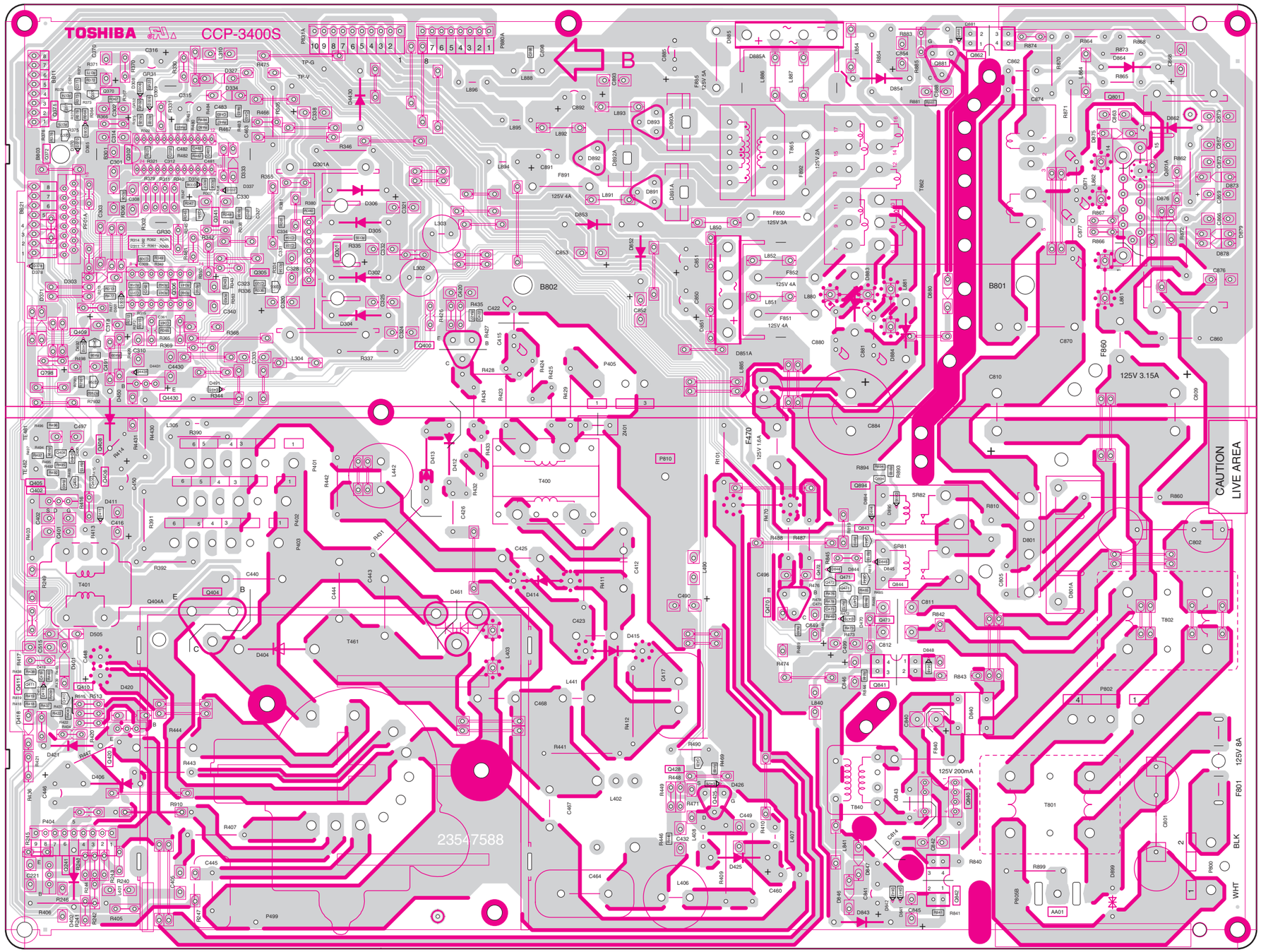
SCAN CONVERTER MODUL, MHSU12 (U001)

TOP (COMPONENT) SIDE



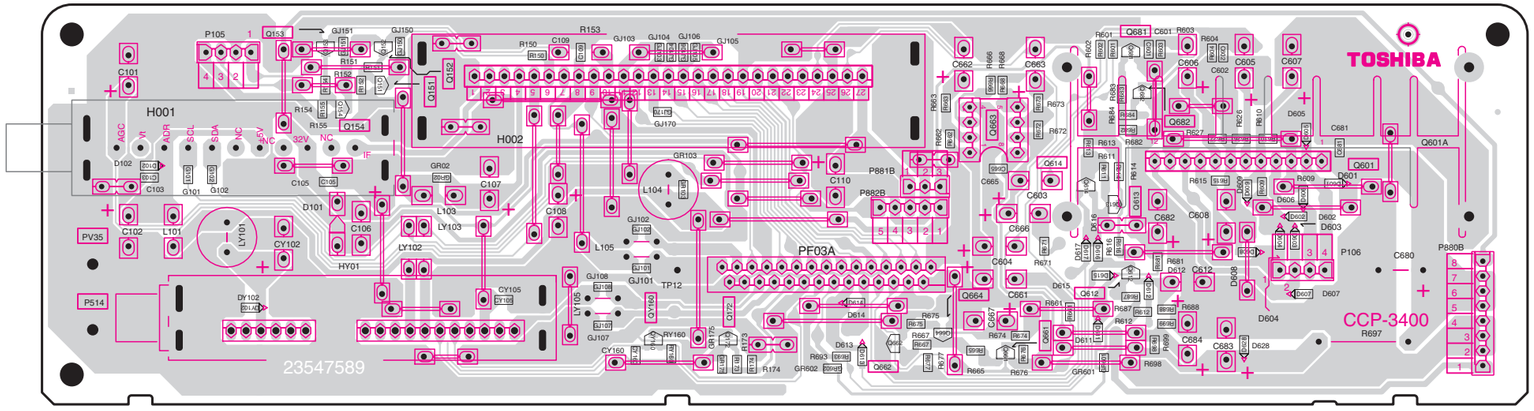
DEFPOWER BOARD PD2201A (U401)

BOTTOM (FOIL) SIDE



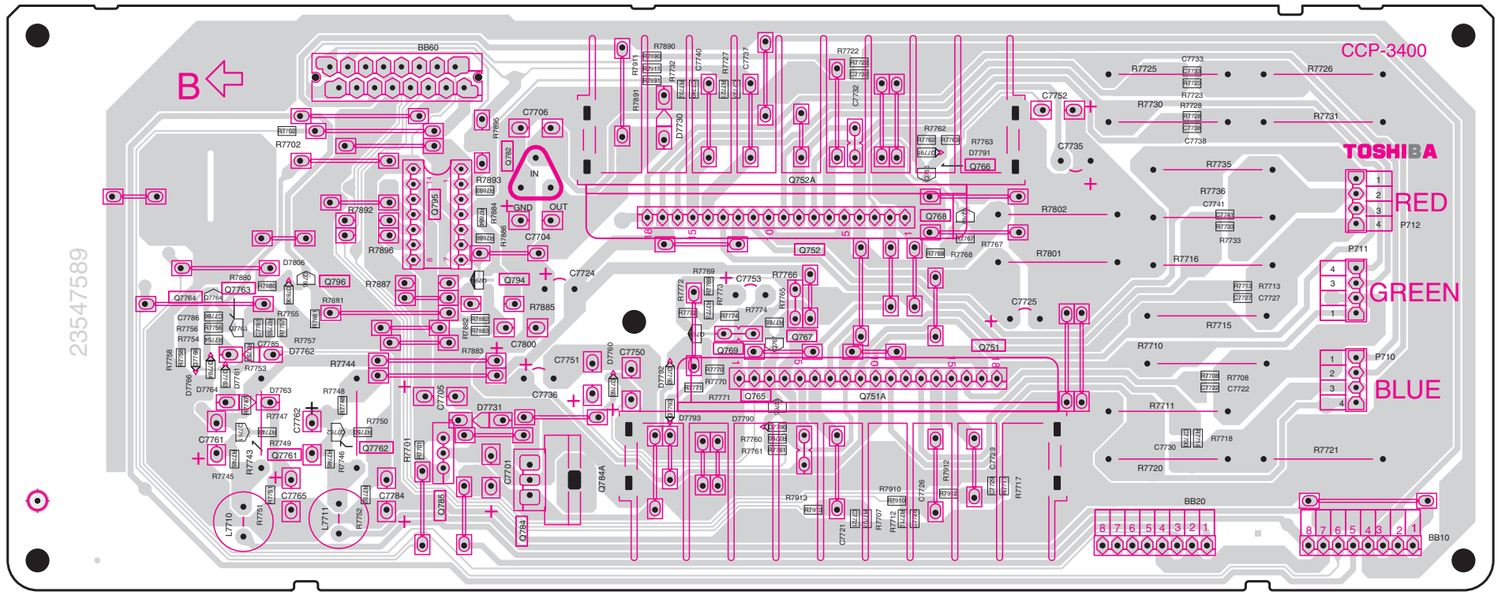
IF/AUDIO BOARD PD1731D2 (U601)

BOTTOM (FOIL) SIDE



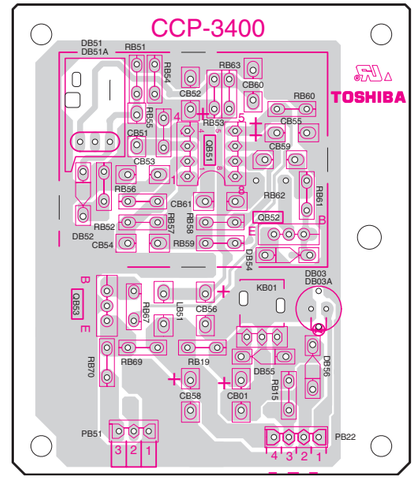
CONVER BOARD PD1731D1 (U711)

BOTTOM (FOIL) SIDE



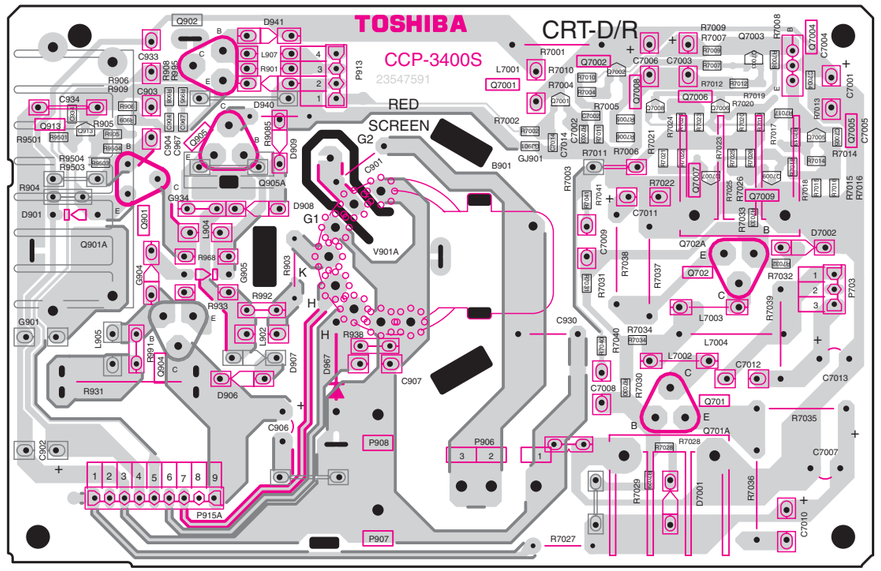
IR BLASTER BOARD PD1289 (E045Z)

BOTTOM (FOIL) SIDE



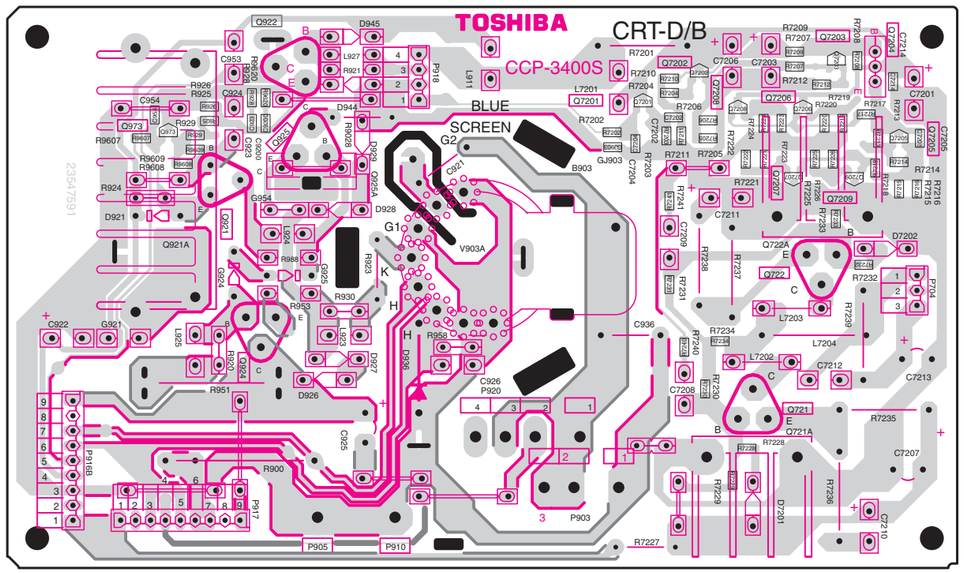
CRT/SVM/R BOARD PD1733G1 (E031Z)

BOTTOM (FOIL) SIDE



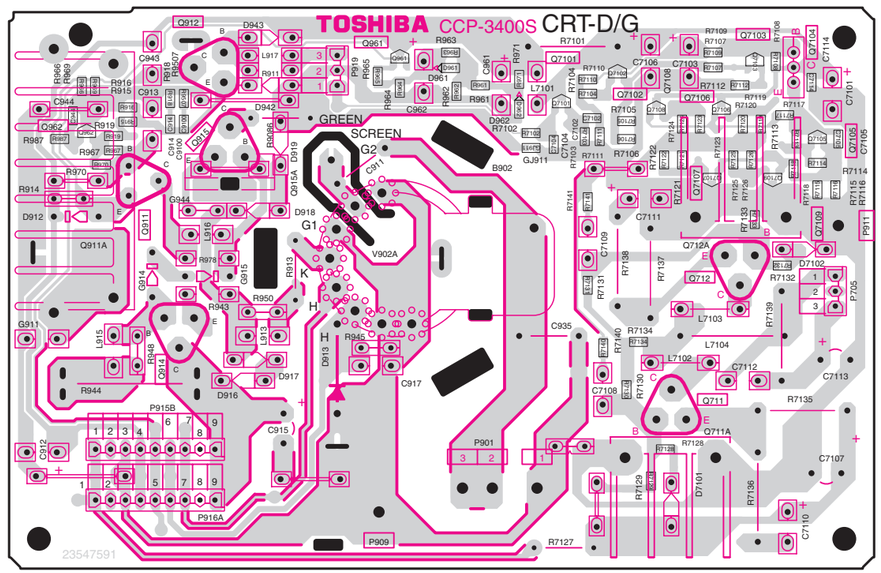
CRT/SVM/B BOARD PD1733G3 (E033Z)

BOTTOM (FOIL) SIDE



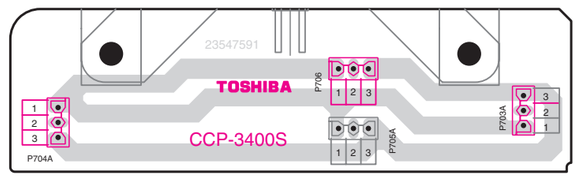
CRT/SVM/G BOARD PD1733G2 (E032Z)

BOTTOM (FOIL) SIDE



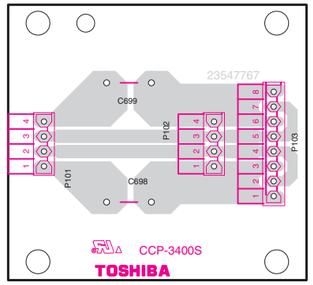
SVM/DIV BOARD PD1733G4 (E034Z)

BOTTOM (FOIL) SIDE



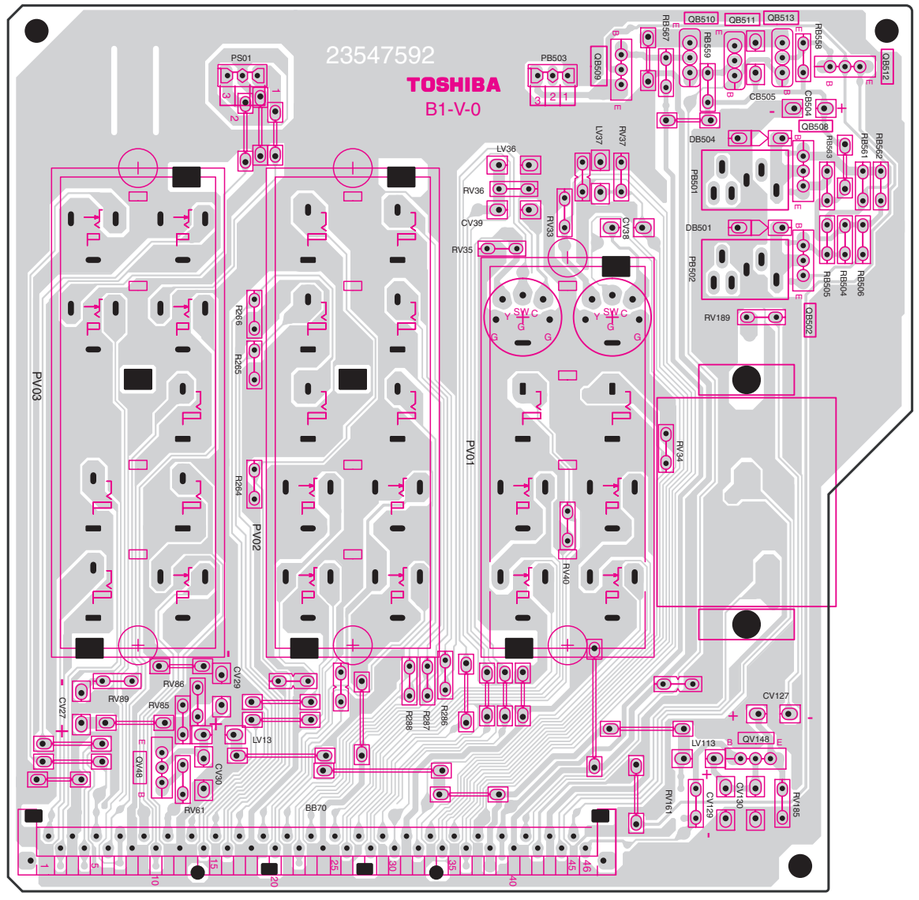
SPK/CAPA BOARD PD2065B (US01)

BOTTOM (FOIL) SIDE



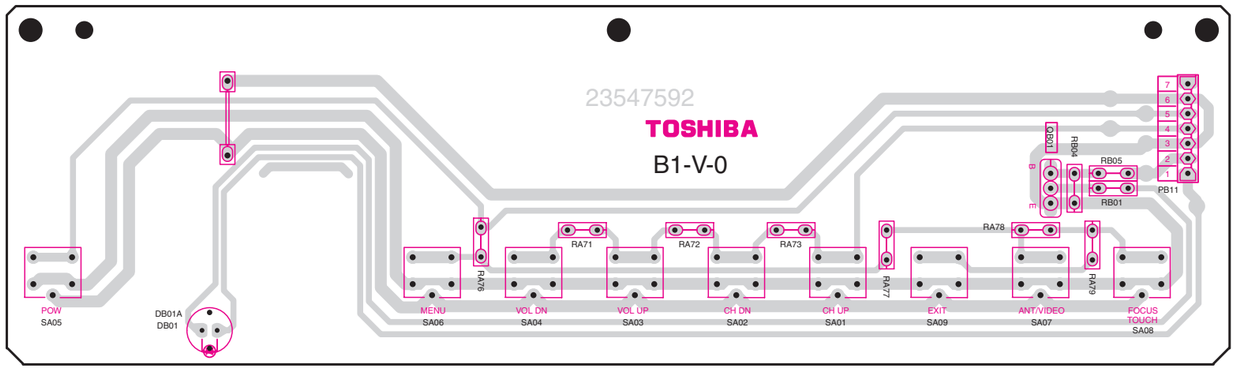
BACK/AV BOARD PD1735E1 (E021Z)

BOTTOM (FOIL) SIDE



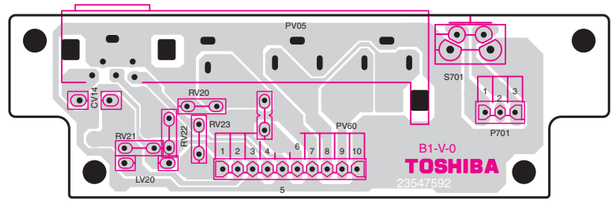
FRONT-CON BOARD PD1735E2 (E022Z)

BOTTOM (FOIL) SIDE



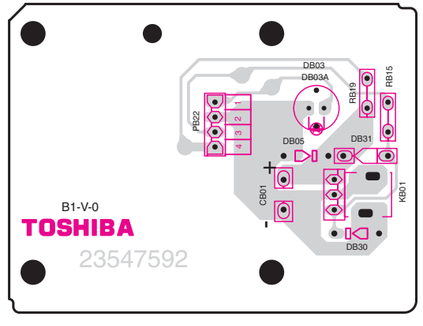
FRONT IN BOARD PD1735E3 (E023Z)

BOTTOM (FOIL) SIDE



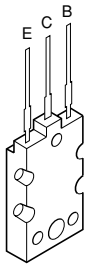
REMOTE BOARD PD1735E4 (E024Z)

BOTTOM (FOIL) SIDE

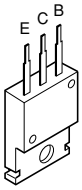


TERMINAL VIEW OF TRANSISTORS

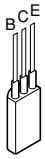
① 2SC5144
2SC5859



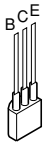
② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



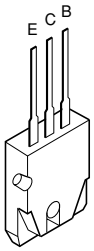
③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



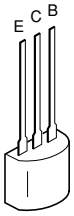
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



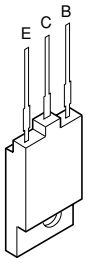
⑤ 2SA1788



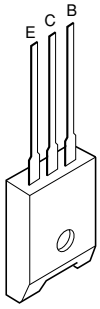
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SD2553
2SC5143



⑧ ON4409



SCHEMATIC DIAGRAM

MODEL : 51HC85/57HC85/65HC15/65HC85

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

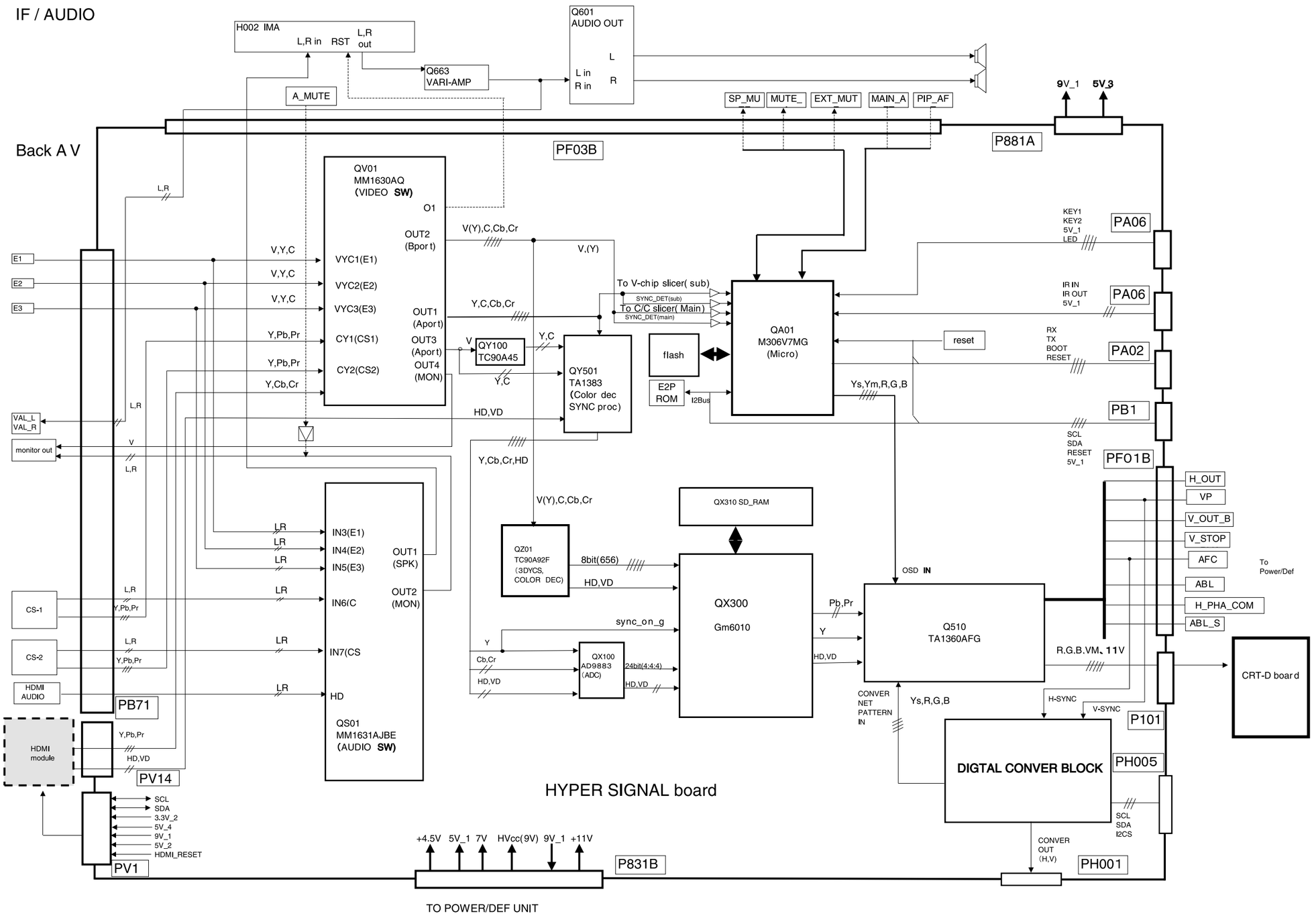
NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in F, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   Electolytic capacitor Mylar capacitor
3. The parts indicated with "⚠" have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage at 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

■ SCHEMATIC DIAGRAM STRUCTURE:

- SPK CONNECTOR Circuit 1/62
- DEF POWER Circuit
  - (1/3) [SHEET - 1/3] 2/62
  - (2/3) [SHEET - 2/3] 3/62
  - (3/3) [SHEET - 3/3] 4/62
- BACK/AV Circuit 5/62
- CONV/IF/AUDIO
  - (1/3) [SHEET - 1/3] 6/62
  - (2/3) [SHEET - 2/3] 7/62
  - (3/3) [SHEET - 3/3] 8/62
- CONVER OUT Circuit 9/62
- FRONT IN/CONT Circuit 10/62
- IR BLASTER Circuit 11/62
- CRT-D Circuit
  - (1/2) [SHEET - 1/2] 12/62
  - (2/2) [SHEET - 2/2] 13/62
- AV Circuit
  - (1/10) [SHEET - 1/10] 14/62
  - (2/10) [SHEET - 2/10] 15/62
  - (3/10) [SHEET - 3/10] 16/62
  - (4/10) [SHEET - 4/10] 17/62
  - (5/10) [SHEET - 5/10] 18/62
  - (6/10) [SHEET - 6/10] 19/62
  - (7/10) [SHEET - 7/10] 20/62
  - (8/10) [SHEET - 8/10] 21/62
  - (9/10) [SHEET - 9/10] 22/62
  - (10/10) [SHEET - 10/10] 23/62
- MICOM Circuit
  - HYPER SIGNAL
    - (1/10) [SHEET - 1/10] 24/62
    - (2/10) [SHEET - 2/10] 25/62
    - (3/10) [SHEET - 3/10] 26/62
    - (4/10) [SHEET - 4/10] 27/62
    - (5/10) [SHEET - 5/10] 28/62
    - (6/10) [SHEET - 6/10] 29/62
    - (7/10) [SHEET - 7/10] 30/62
    - (8/10) [SHEET - 8/10] 31/62
    - (9/10) [SHEET - 9/10] 32/62
    - (10/10) [SHEET - 10/10] 33/62
  - G-HYPER Circuit
    - (1/3) [SHEET - 1/3] 34/62
    - (2/3) [SHEET - 2/3] 35/62
    - (3/3) [SHEET - 3/3] 36/62
  - AD-CONVERTER Circuit
    - (A) [SHEET - 1/3] 37/62
    - (B) [SHEET - 2/3] 38/62
    - (C) [SHEET - 3/3] 39/62
  - GC-TC90A92A Circuit
    - (1/3) [SHEET - 1/3] 40/62
    - (2/3) [SHEET - 2/3] 41/62
    - (3/3) [SHEET - 3/3] 42/62
  - GC-REG Circuit 43/62
  - GNESIS Circuit
    - (1/3) [SHEET - 1/3] 44/62
    - (2/3) [SHEET - 2/3] 45/62
    - (3/3) [SHEET - 3/3] 46/62
  - SDRAM Circuit 47/62
  - GNESIS OUT Circuit 48/62
  - GNESIS REG Circuit 49/62
  - CPU Circuit 50/62
  - DIGITAL CONVER Circuit
    - (1/8) [SHEET - 1/8] 51/62
    - (2/8) [SHEET - 2/8] 52/62
    - (3/8) [SHEET - 3/8] 53/62
    - (4/8) [SHEET - 4/8] 54/62
    - (5/8) [SHEET - 5/8] 55/62
    - (6/8) [SHEET - 6/8] 56/62
    - (7/8) [SHEET - 7/8] 57/62
    - (8/8) [SHEET - 8/8] 58/62
  - CONVER-REG Circuit
    - (1/4) [SHEET - 1/4] 59/62
    - (2/4) [SHEET - 2/4] 60/62
    - (3/4) [SHEET - 3/4] 61/62
    - (4/4) [SHEET - 4/4] 62/62

CIRCUIT BLOCK DIAGRAM



TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

TOSHIBA

FILE NO. 020-200507CD

DRAFT

CIRCUIT DIAGRAMS

Projection Monitor

51HC85
57HC85
65HC15
65HC85

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DOCUMENT CREATED IN JAPAN, June, 2005

SCHEMATIC DIAGRAM

MODEL : 51HC85/57HC85/65HC15/65HC85

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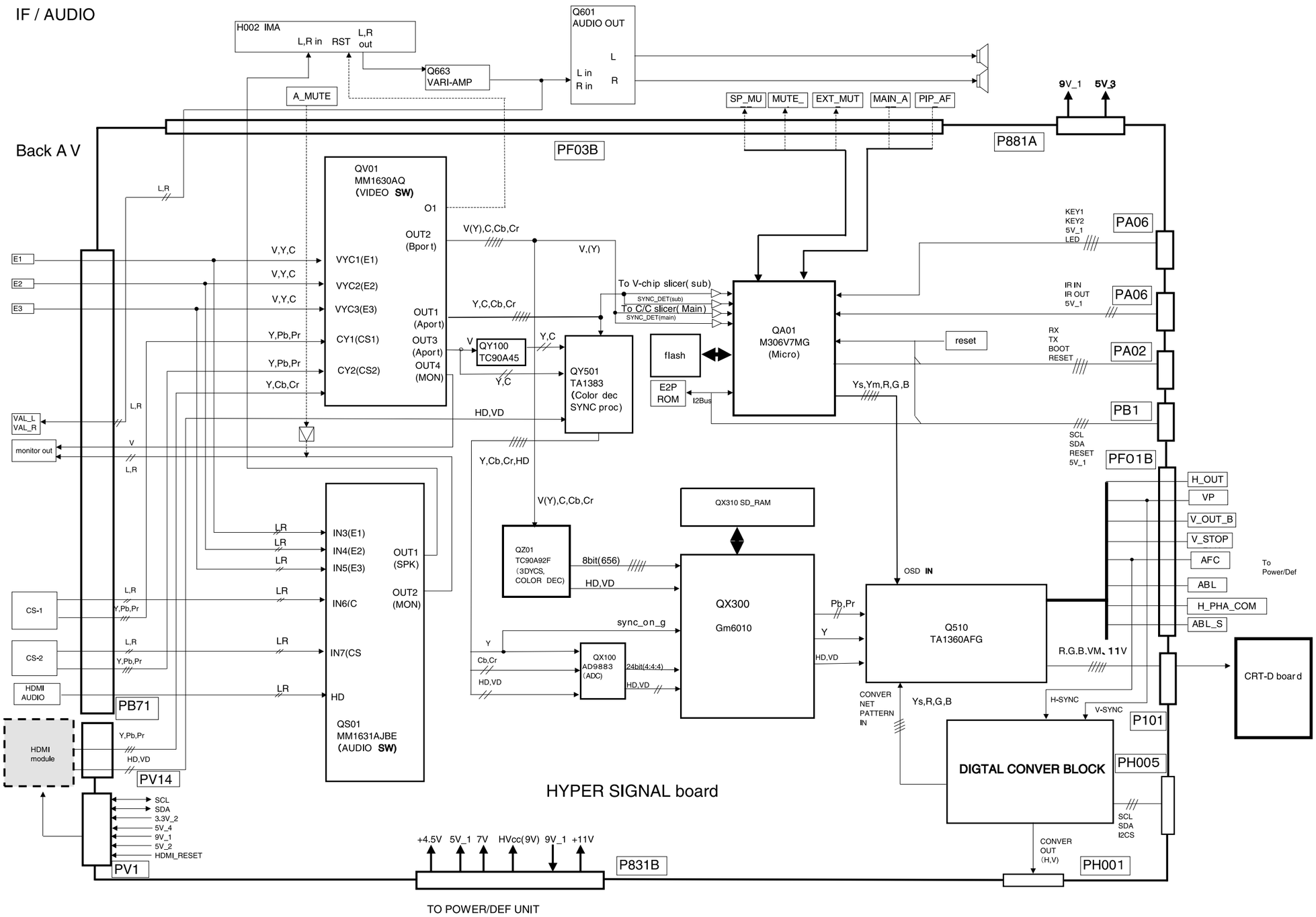
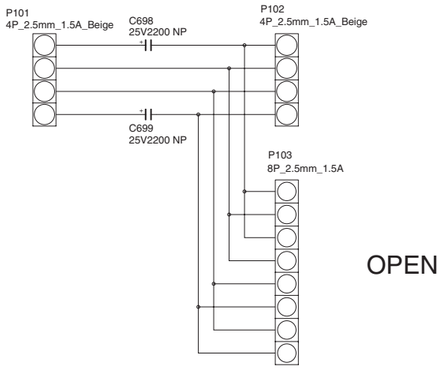
■ SCHEMATIC DIAGRAM STRUCTURE:

- SPK CONNECTOR Circuit 1/62
- DEF POWER Circuit
  - (1/3) [SHEET - 1/3] 2/62
  - (2/3) [SHEET - 2/3] 3/62
  - (3/3) [SHEET - 3/3] 4/62
- BACK/AV Circuit 5/62
- CONV/IF/AUDIO
  - (1/3) [SHEET - 1/3] 6/62
  - (2/3) [SHEET - 2/3] 7/62
  - (3/3) [SHEET - 3/3] 8/62
- CONVER OUT Circuit 9/62
- FRONT IN/CONT Circuit 10/62
- IR BLASTER Circuit 11/62
- CRT-D Circuit
  - (1/2) [SHEET - 1/2] 12/62
  - (2/2) [SHEET - 2/2] 13/62
- AV Circuit
  - (1/10) [SHEET - 1/10] 14/62
  - (2/10) [SHEET - 2/10] 15/62
  - (3/10) [SHEET - 3/10] 16/62
  - (4/10) [SHEET - 4/10] 17/62
  - (5/10) [SHEET - 5/10] 18/62
  - (6/10) [SHEET - 6/10] 19/62
  - (7/10) [SHEET - 7/10] 20/62
  - (8/10) [SHEET - 8/10] 21/62
  - (9/10) [SHEET - 9/10] 22/62
  - (10/10) [SHEET - 10/10] 23/62
- MICOM Circuit
  - HYPER SIGNAL
    - (1/10) [SHEET - 1/10] 24/62
    - (2/10) [SHEET - 2/10] 25/62
    - (3/10) [SHEET - 3/10] 26/62
    - (4/10) [SHEET - 4/10] 27/62
    - (5/10) [SHEET - 5/10] 28/62
    - (6/10) [SHEET - 6/10] 29/62
    - (7/10) [SHEET - 7/10] 30/62
    - (8/10) [SHEET - 8/10] 31/62
    - (9/10) [SHEET - 9/10] 32/62
    - (10/10) [SHEET - 10/10] 33/62
  - G-HYPER Circuit
    - (1/3) [SHEET - 1/3] 34/62
    - (2/3) [SHEET - 2/3] 35/62
    - (3/3) [SHEET - 3/3] 36/62
  - AD-CONVERTER Circuit
    - (A) [SHEET - 1/3] 37/62
    - (B) [SHEET - 2/3] 38/62
    - (C) [SHEET - 3/3] 39/62
  - GC-TC90A92A Circuit
    - (1/3) [SHEET - 1/3] 40/62
    - (2/3) [SHEET - 2/3] 41/62
    - (3/3) [SHEET - 3/3] 42/62
  - GC-REG Circuit 43/62
  - GNESIS Circuit
    - (1/3) [SHEET - 1/3] 44/62
    - (2/3) [SHEET - 2/3] 45/62
    - (3/3) [SHEET - 3/3] 46/62
  - SDRAM Circuit 47/62
  - GNESIS OUT Circuit 48/62
  - GNESIS REG Circuit 49/62
  - CPU Circuit 50/62
  - DIGITAL CONVER Circuit
    - (1/8) [SHEET - 1/8] 51/62
    - (2/8) [SHEET - 2/8] 52/62
    - (3/8) [SHEET - 3/8] 53/62
    - (4/8) [SHEET - 4/8] 54/62
    - (5/8) [SHEET - 5/8] 55/62
    - (6/8) [SHEET - 6/8] 56/62
    - (7/8) [SHEET - 7/8] 57/62
    - (8/8) [SHEET - 8/8] 58/62
  - CONVER-REG Circuit
    - (1/4) [SHEET - 1/4] 59/62
    - (2/4) [SHEET - 2/4] 60/62
    - (3/4) [SHEET - 3/4] 61/62
    - (4/4) [SHEET - 4/4] 62/62

65HC15 and 51/57/65HC85 CIRCUIT BLOCK DIAGRAM





OPEN

51HC85/57HC85/65HC15/65HC85
SPK CONNECTOR

DEF/POWER

TO HYPER/SIGNAL

P810A
WDC-8STAVA

H_OUT	1	H_OUT	2-E1
H_OUT_GND	2	⏚	
ABL_SW	3	ABL_SW	2-C1
AFC	4	AFC	2-D1
ABL	5	ABL	2-C1
GND	6	⏚	
H_CONV	7	H_CONV	2-E1
ACP	8	ACP	3-E7
POWER	9	POWER	3-E7
BLK_UP	10		
H_PHA_COM	11	H_PHA_COM	2-B1
GND	12	⏚	
SDA1	13	SDA1	2-B8
SCL1	14	SCL1	2-B8
V_STOP_BLK	15	V_STOP_BLK	2-C1
VP_Q510	16	VP_Q510	2-A1

P802A
10P_2.0mm_1.5A_Beige

+4.5V	1	4.5V	3-A7
GND	2	⏚	
+5V-1	3	5V1	3-E7
GND	4	⏚	
+7V	5	7V	3-A7
GND	6	⏚	
H.Vcc	7	HVCC	2-D1
+9V-1	8	9V1	2-C1
GND	9	⏚	
+11V	10	11V	3-B7

P801
Lock-2P_11.88mm_S

P801
POWER CORD
CHCHA0120272036
or VM0094Q0370184

3-F1 AC_L1
3-F1 AC_N1

3-E1 AC_L2
3-D1 AC_N2

P802
CP07A

AC_L2 NC NC AC_N2

TO SUB POWER

2-D8 DF_V
3-C7 GND

P405
B03B-DVS-L

DF_V NC GND

TO FOCUS PACK

2-D8 H_OUT
2-D8 H_REV
2-C8 V_IN
2-B8 V_OUT
2-B8 V_OUT
2-B8 V_OUT

P403
6P_5mm_5A

P402
6P_5mm_5A

P401
6P_5mm_5A

L464
TDY707AS(R)

L463
TDY707AS(R)

L462
TDY707AS(R)

3-C7 GND
P810
1P

3-C7 +120V
2-C8 HV_DET
2-C8 HEATER
2-C8 200V

P404
9P_2.5mm_1.5A_Beige

TO CRT DRIVE

TO SVM

3-B7 11V
2-C1 CONV_ABL
2-E1 H_CONV
2-D1 AFC
2-C1 V_DF1
2-B1 V_BLK

BB21
BP 2.5P-J-P

TO CONVER

3-B7 -21V
2-B7 -16V2
2-B7 16V2
3-C7 PROTECT
3-B7 21V

BB11
BP 2.5P-J-P

3-C7 32V
3-C7 AVCC
3-C7 AGND
3-B7 11V

P880A
BP_2.5mm_1.5A_Beige

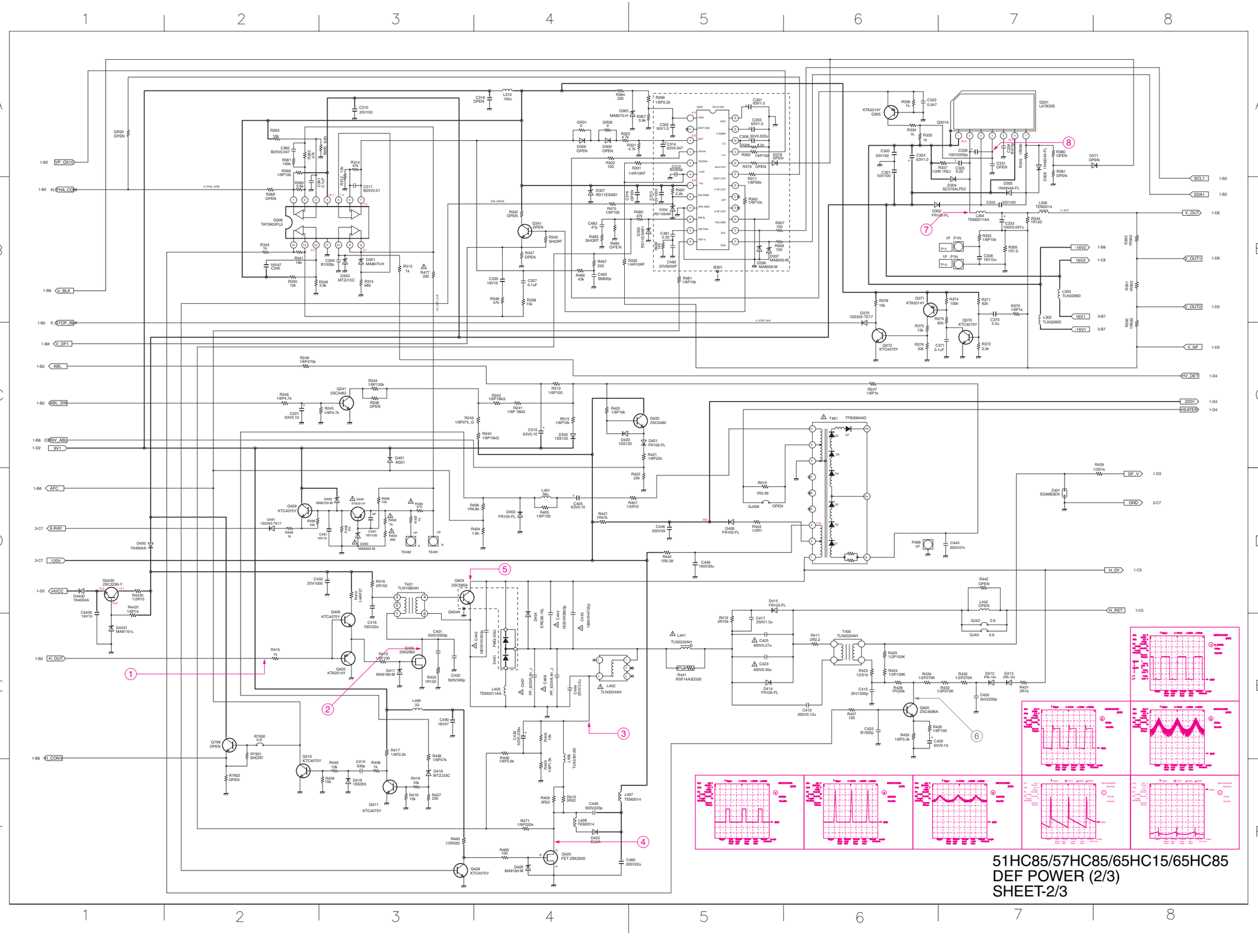
TO IF/AUDIO

3-F2 TGND

P805B
1P

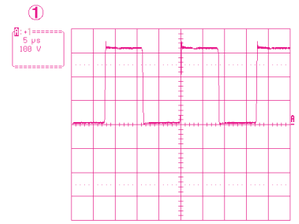
TUNER GND

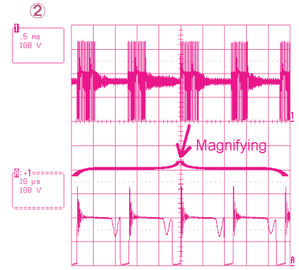
51HC85/57HC85/65HC15/65HC85
DEF POWER (1/3)
SHEET-1/3

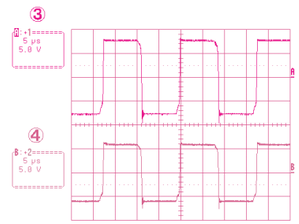


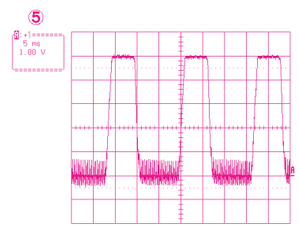
51HC85/57HC85/65HC15/65HC85
DEF POWER (2/3)
SHEET-2/3

LIVE AREA

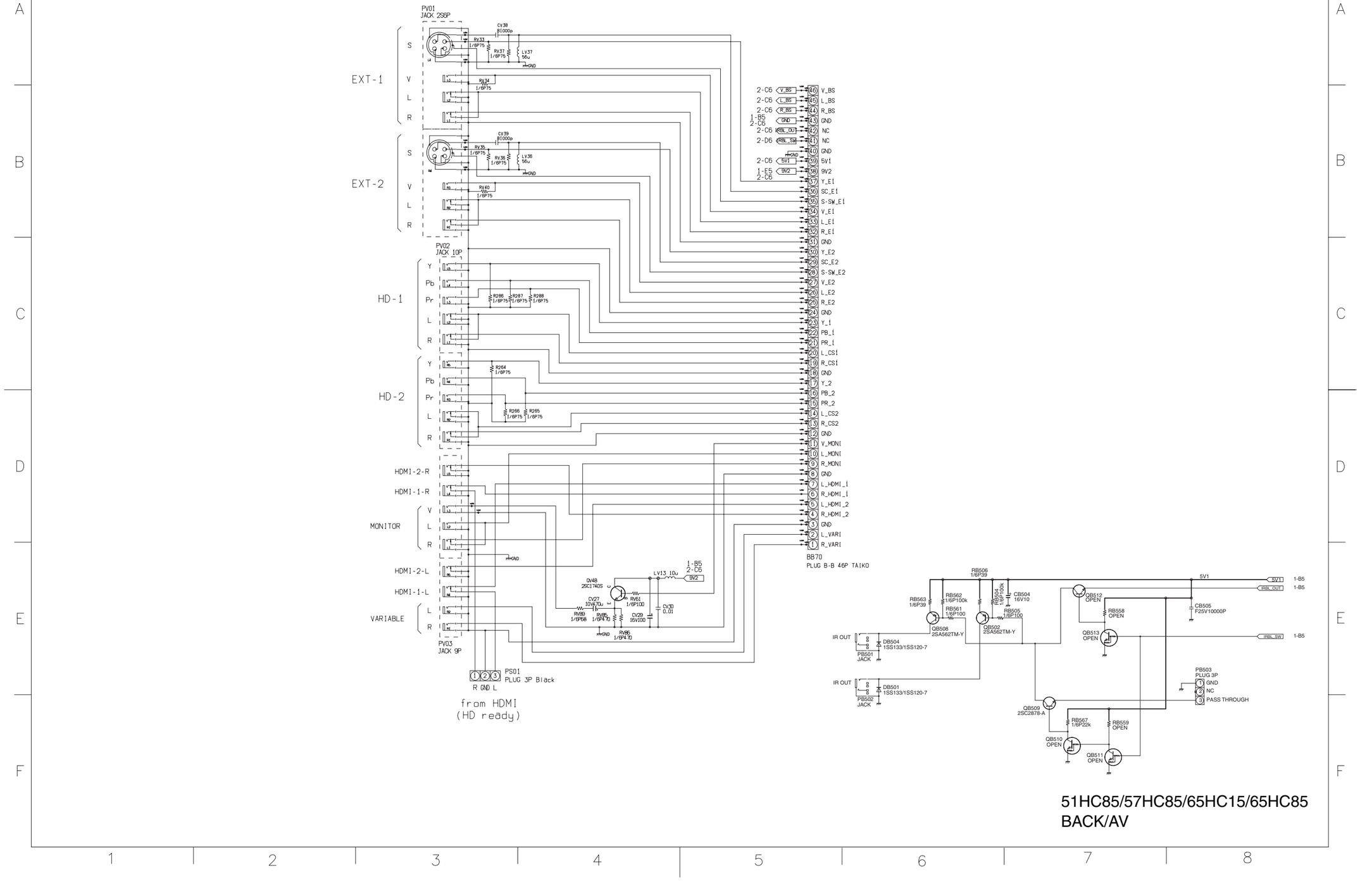




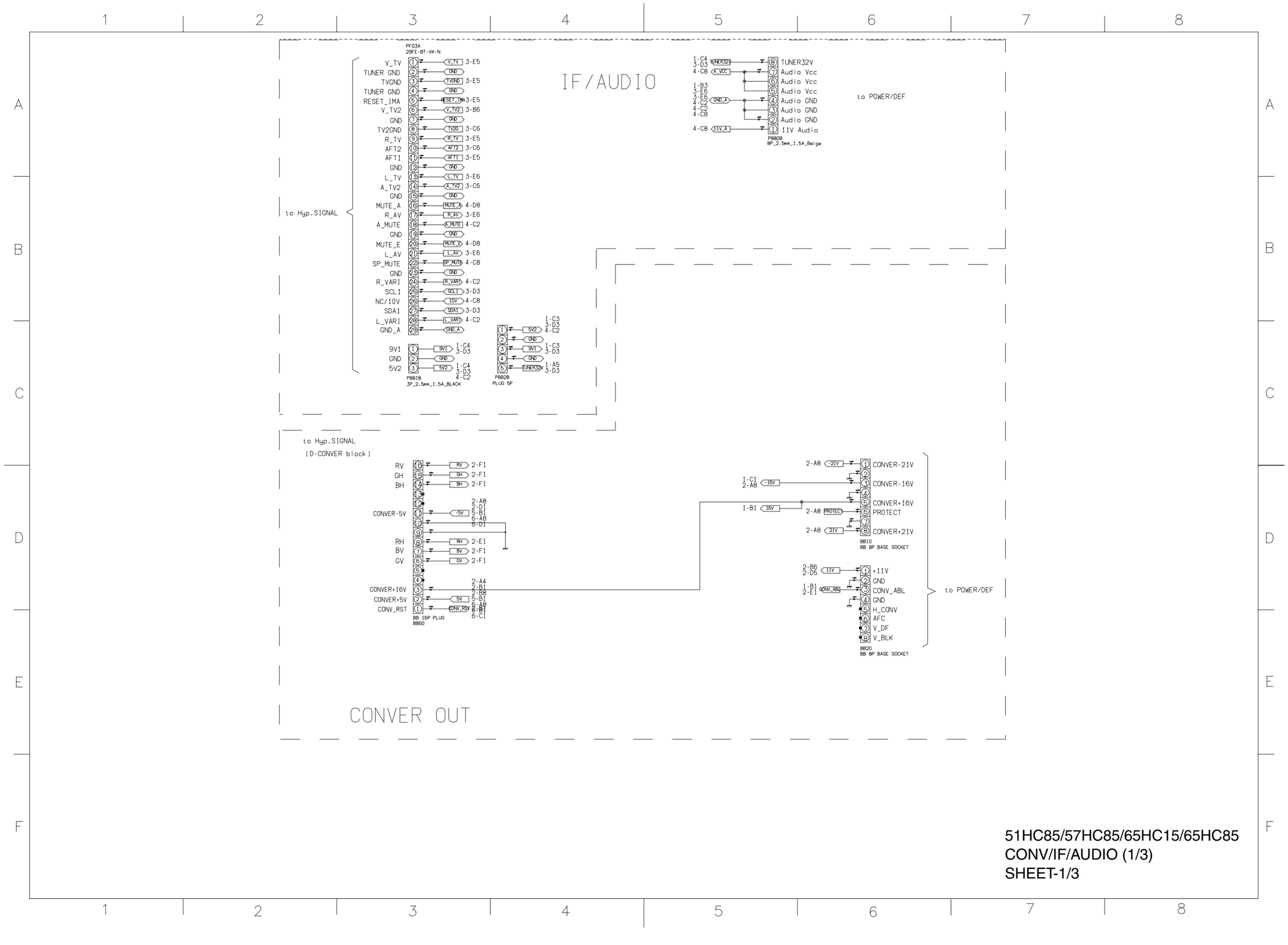




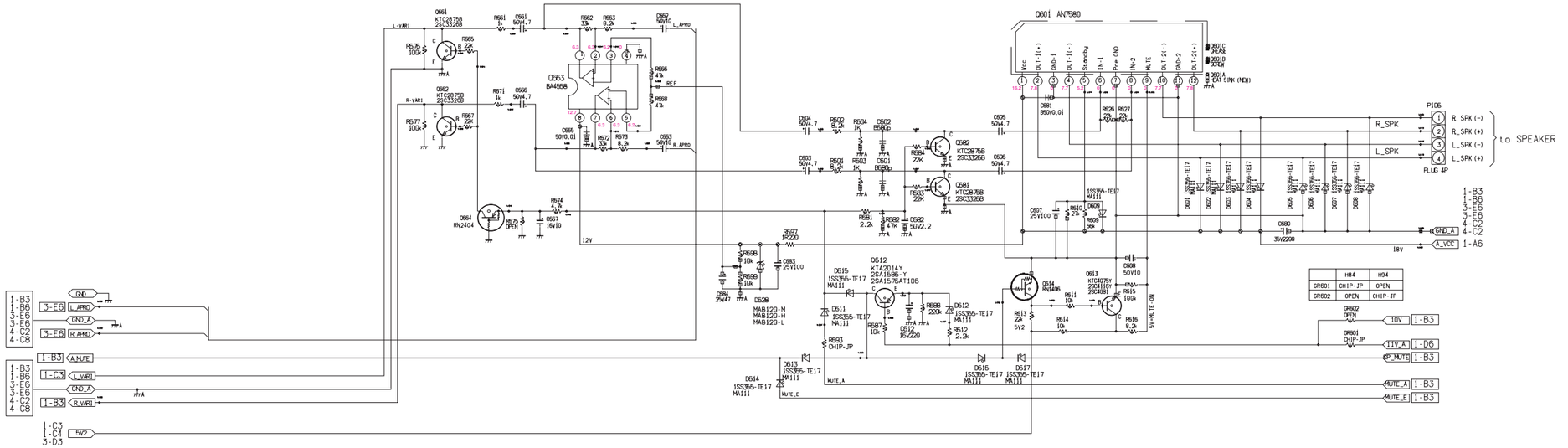
51HC85/57HC85/65HC15/65HC85
DEF POWER (3/3)
SHEET-3/3



51HC85/57HC85/65HC15/65HC85
BACK/AV

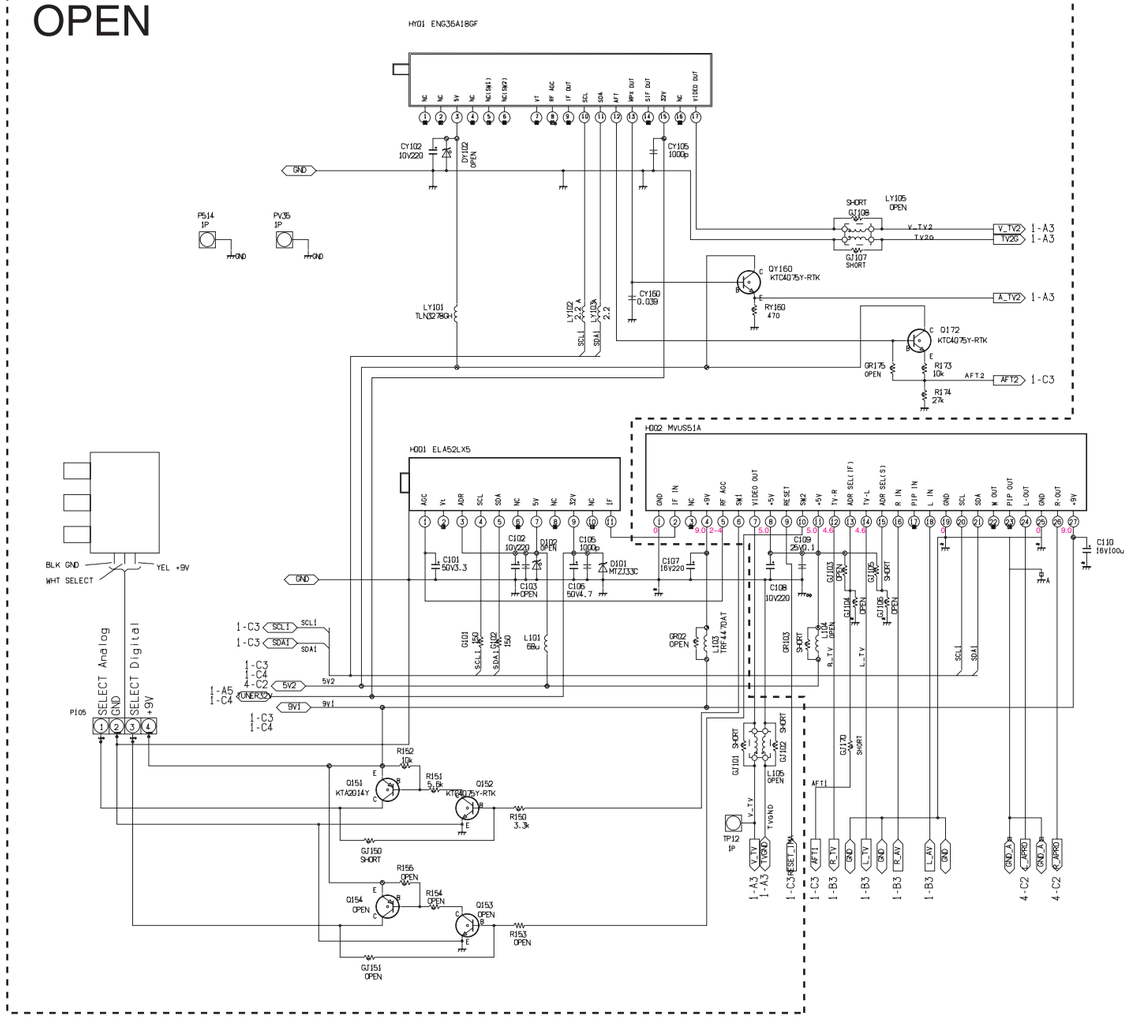


51HC85/57HC85/65HC15/65HC85
CONV/IF/AUDIO (1/3)
SHEET-1/3

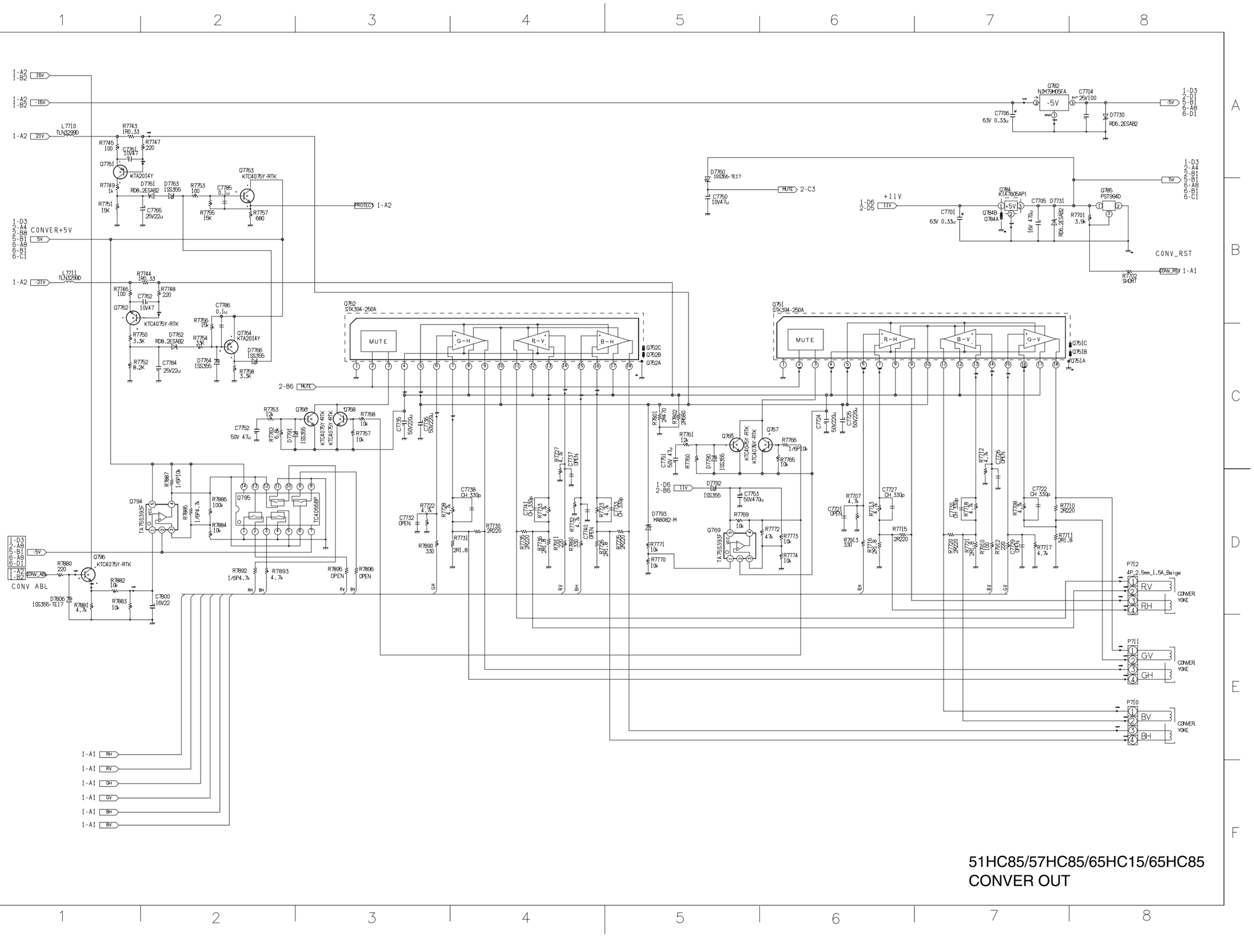


51HC85/57HC85/65HC15/65HC85
CONV/IF/AUDIO (2/3)
SHEET-2/3

OPEN

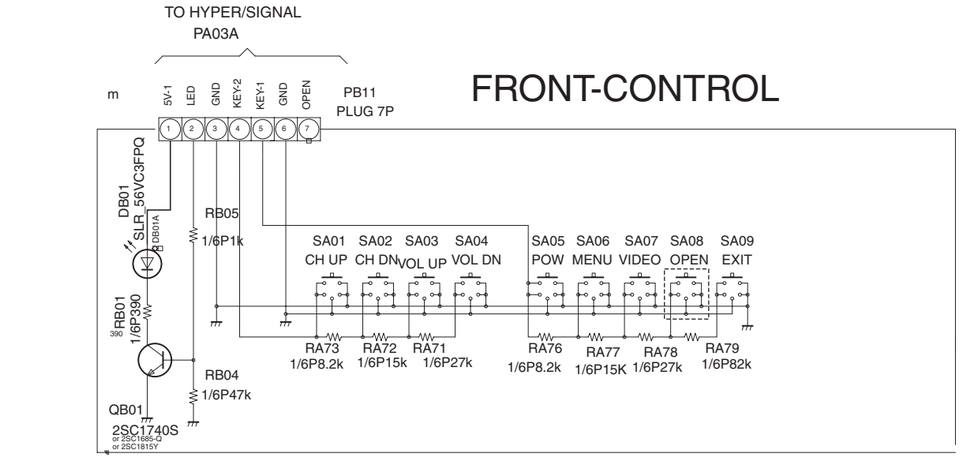


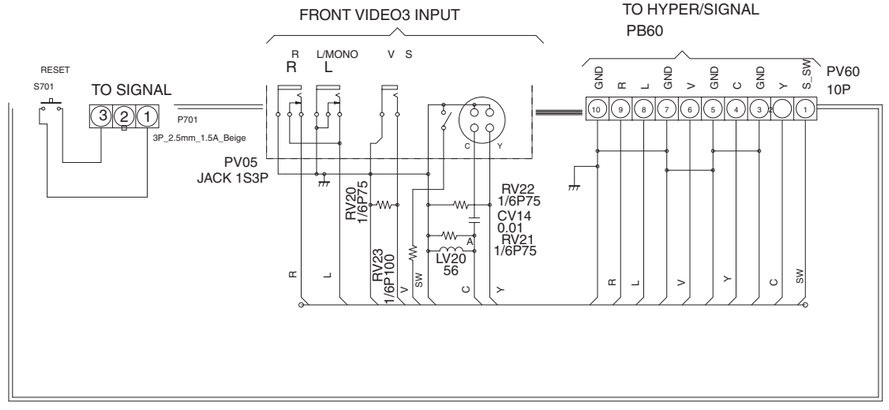
51HC85/57HC85/65HC15/65HC85
CONV/IF/AUDIO (3/3)
SHEET-3/3



51HC85/57HC85/65HC15/65HC85
CONVER OUT

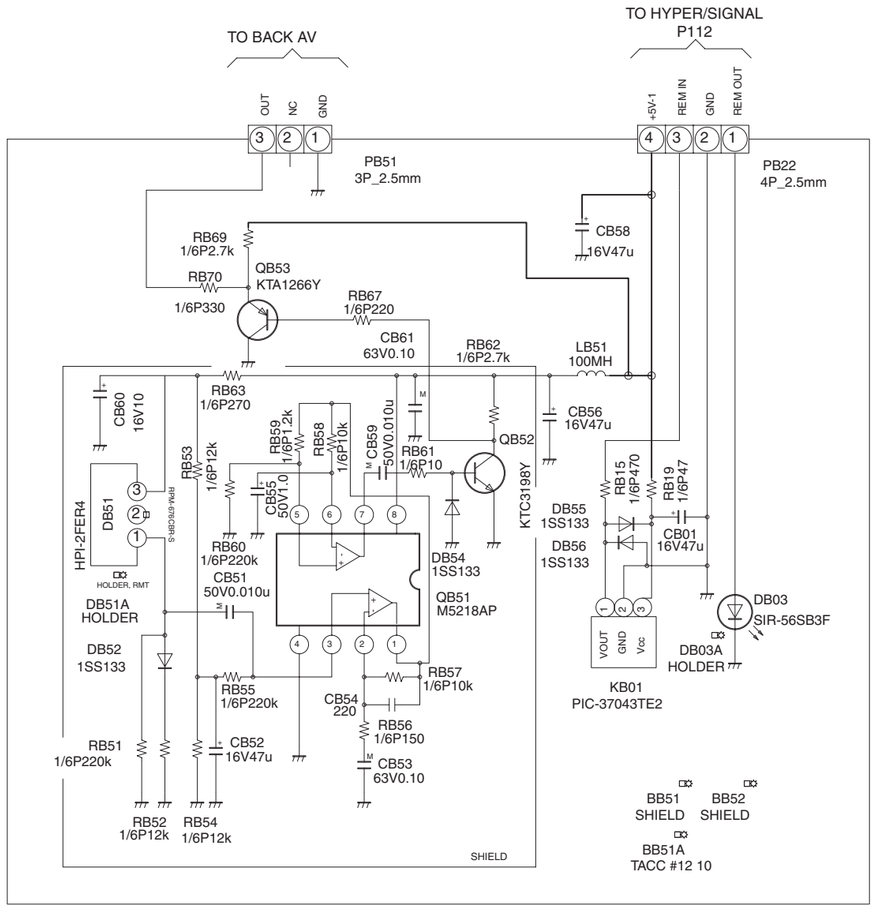
FRONT-CONTROL



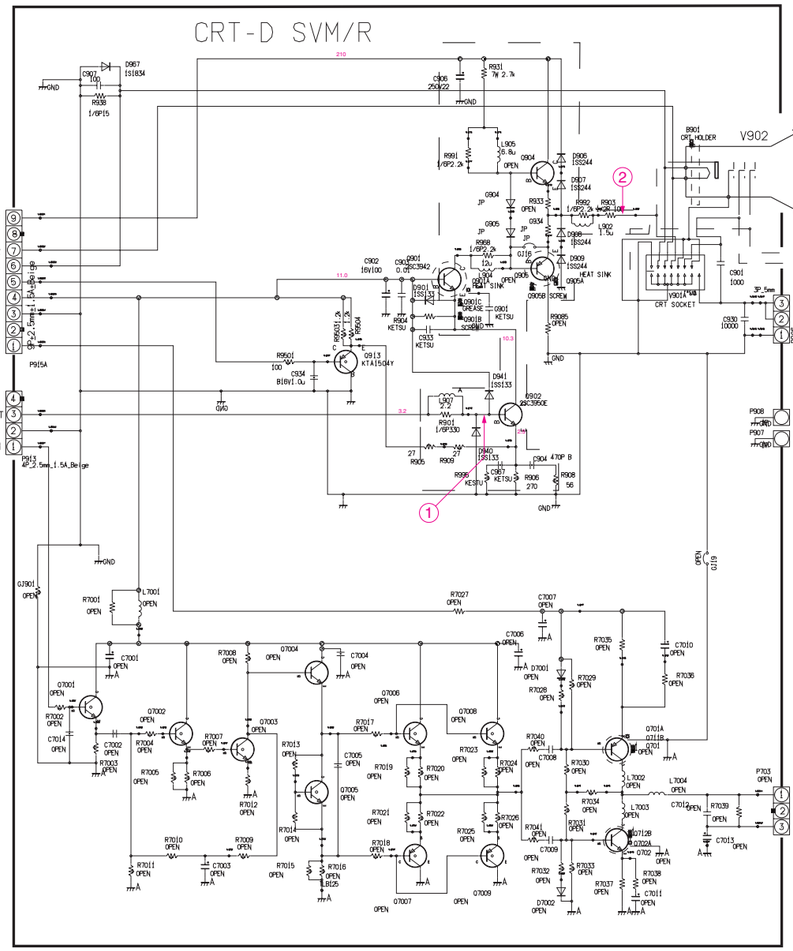


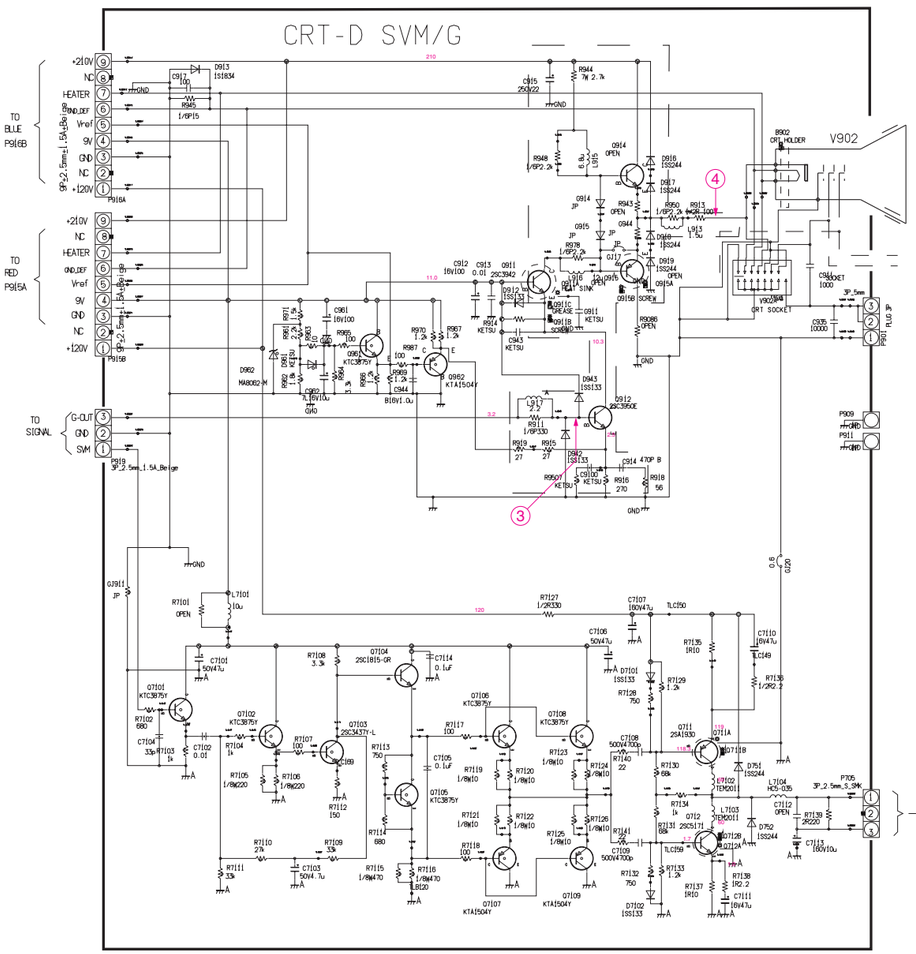
FRONT-IN

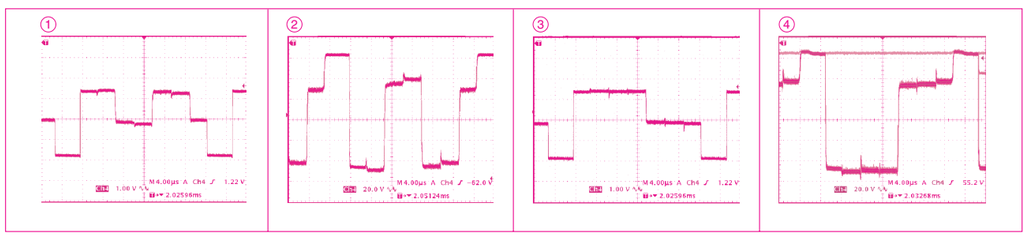
51HC85/57HC85/65HC15/65HC85
FRONT IN/CONT



51HC85/57HC85/65HC15/65HC85
IR BLASTER

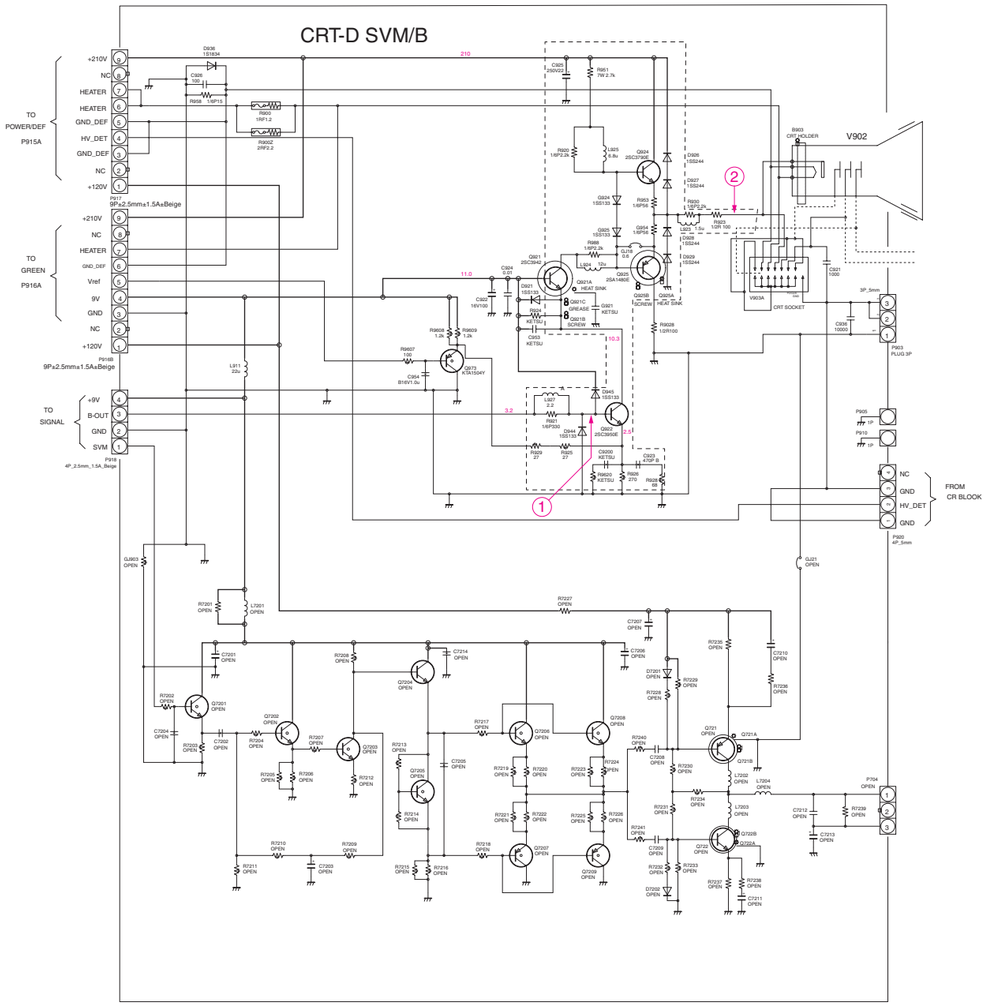


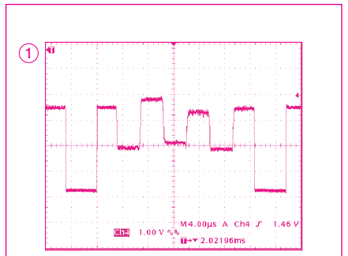


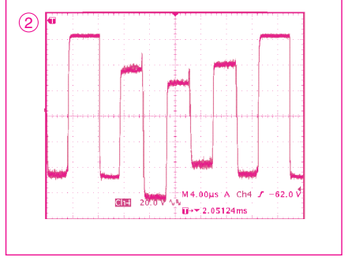


51HC85/57HC85/65HC15/65HC85
CRT-D (1/2)
SHEET-1/2

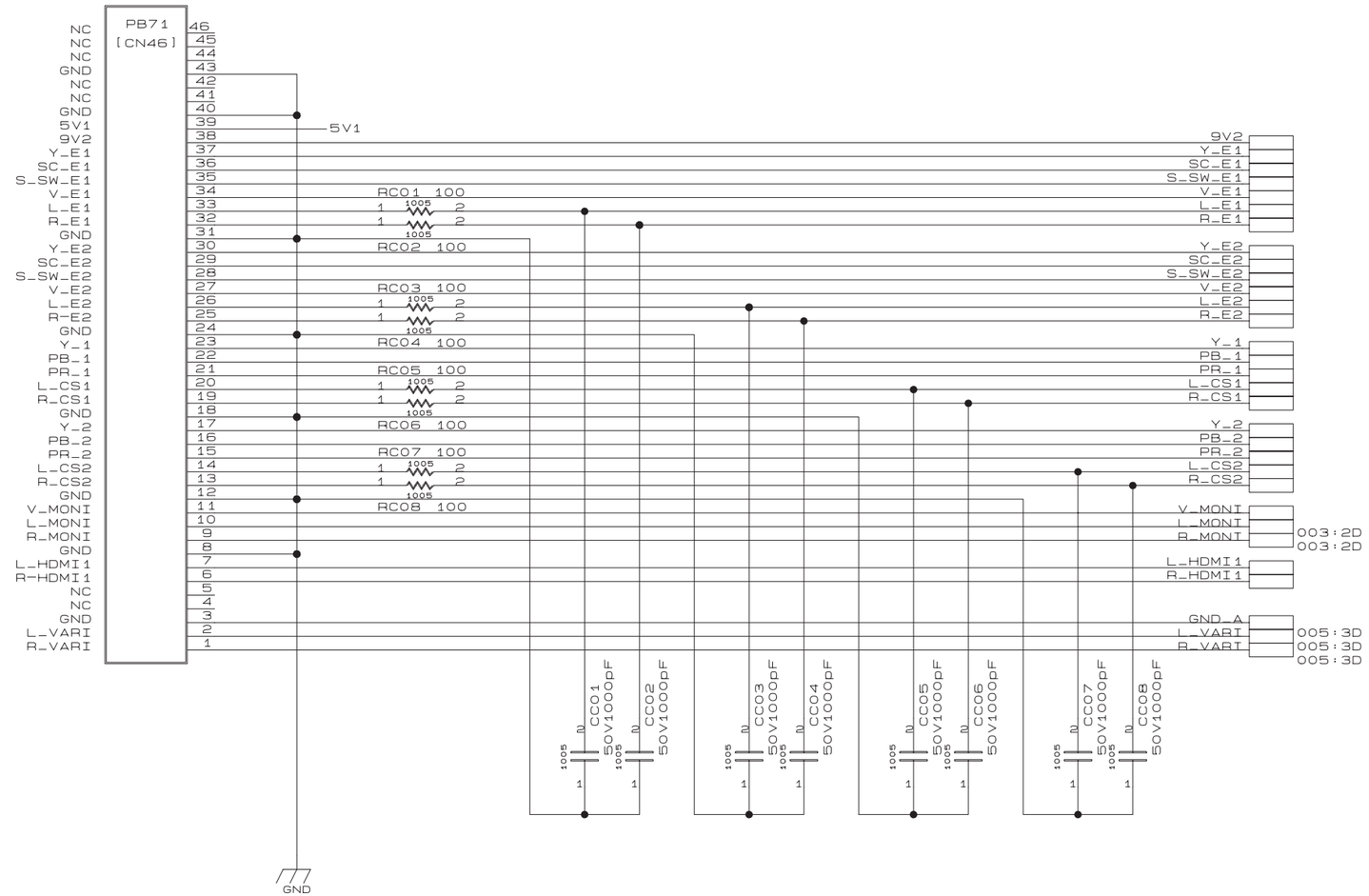
CRT-D SVM/B





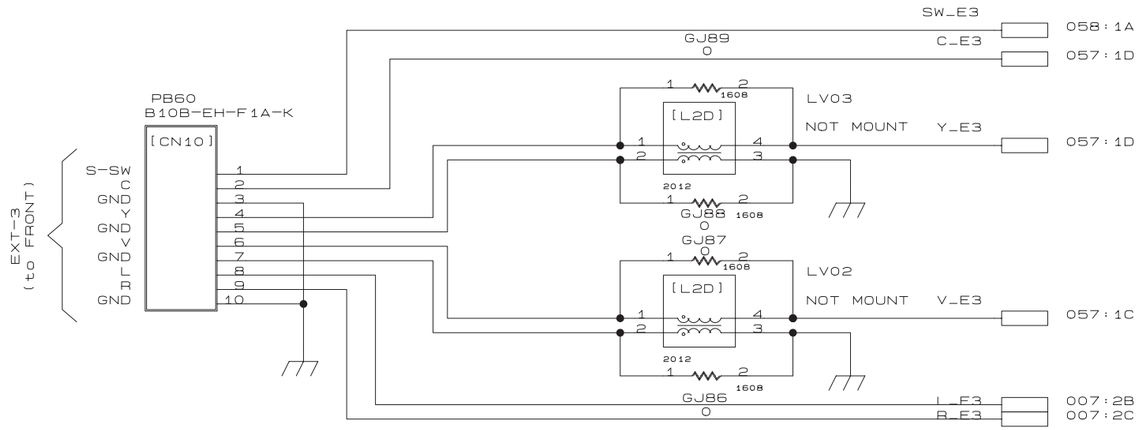


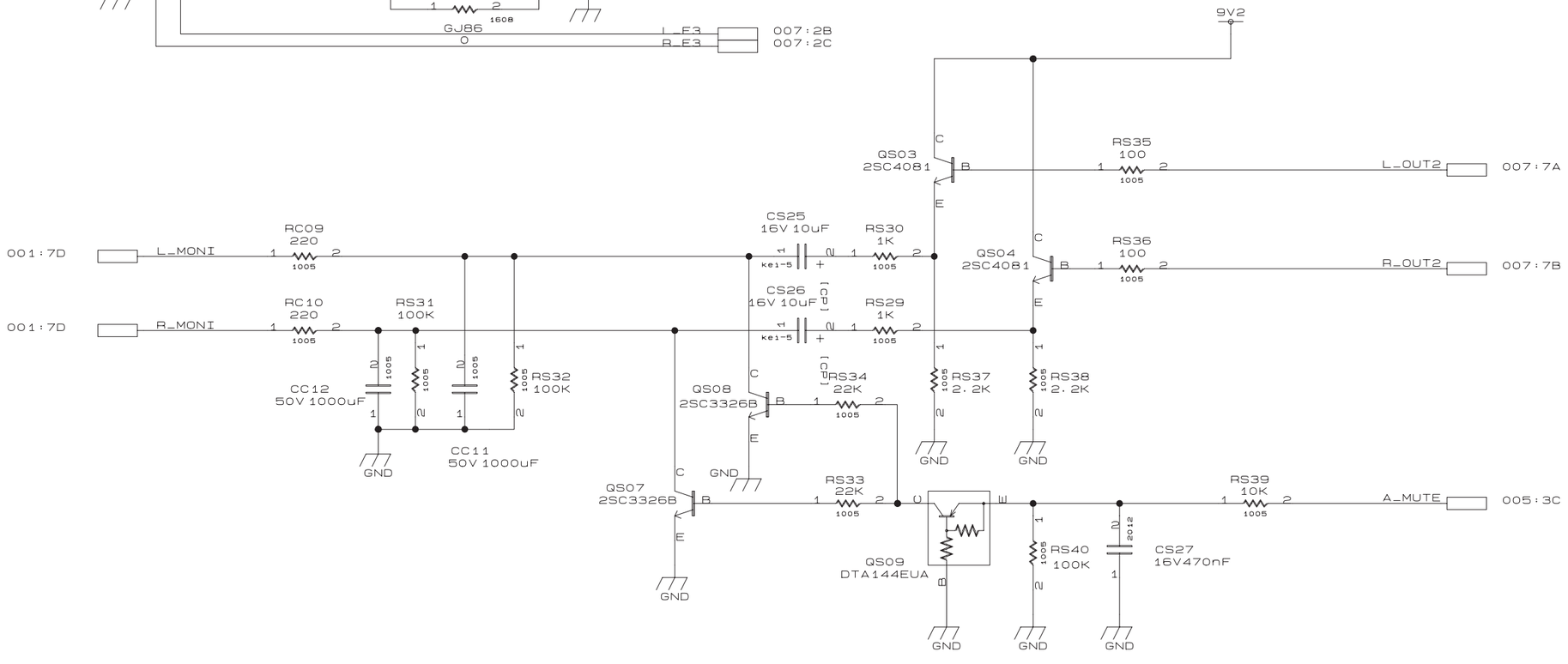
51HC85/57HC85/65HC15/65HC85
CRT-D (2/2)
SHEET-2/2



51HC85/57HC85/65HC15/65HC85
AV (1/10)
SHEET-1/10

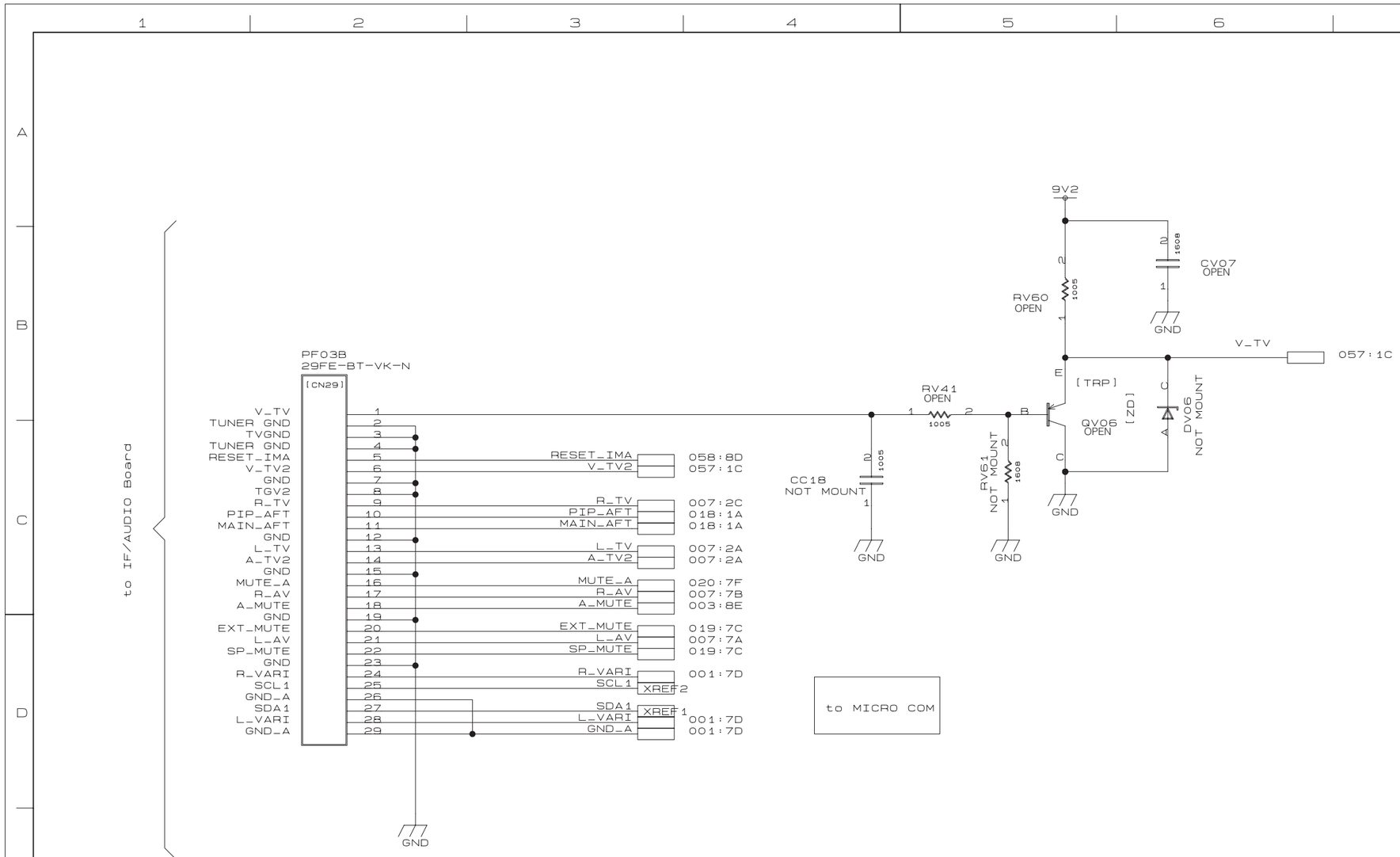
SH. NO.
1





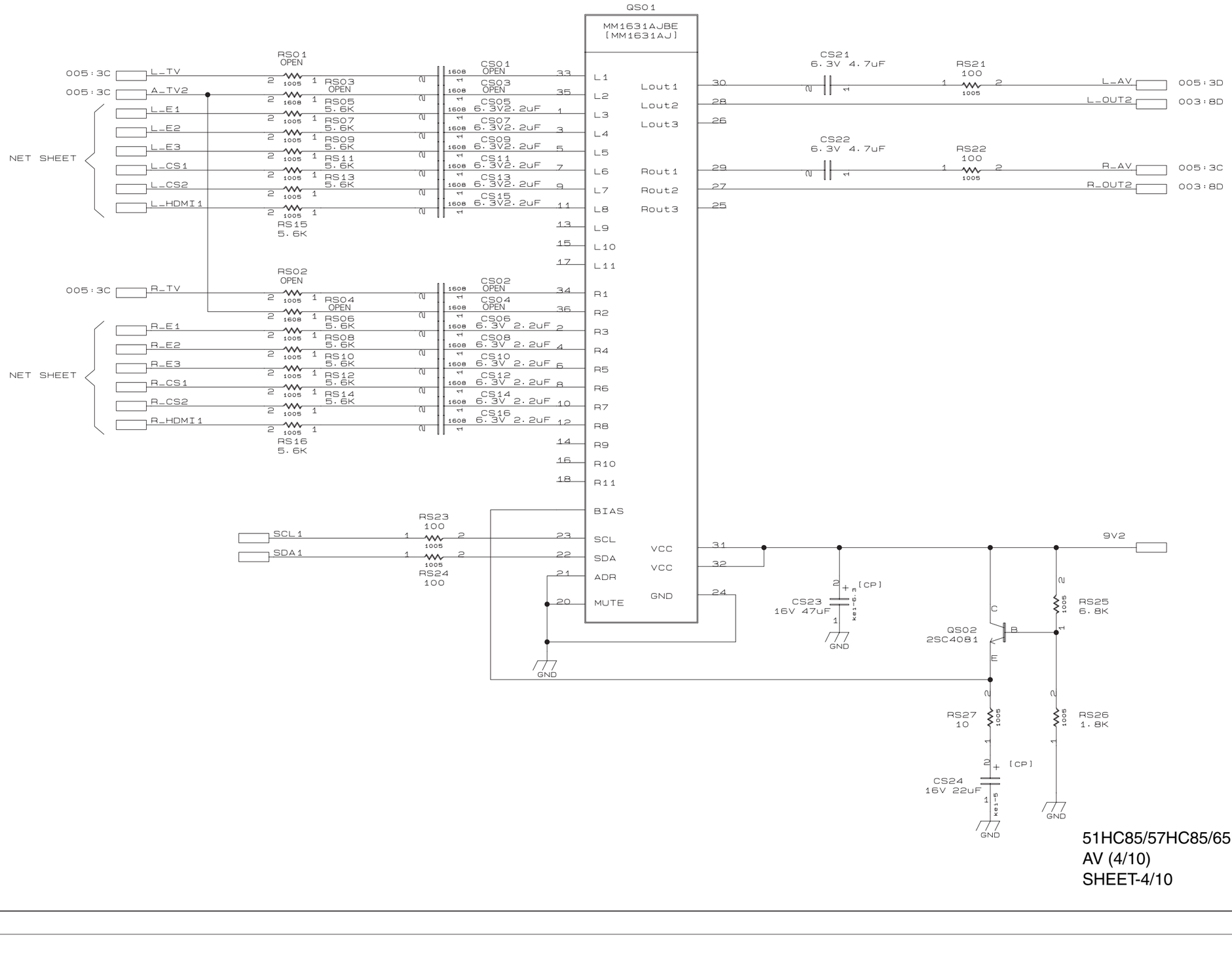
51HC85/57HC85/65HC15/65HC85
AV (2/10)
SHEET-2/10

SH. NO.
3



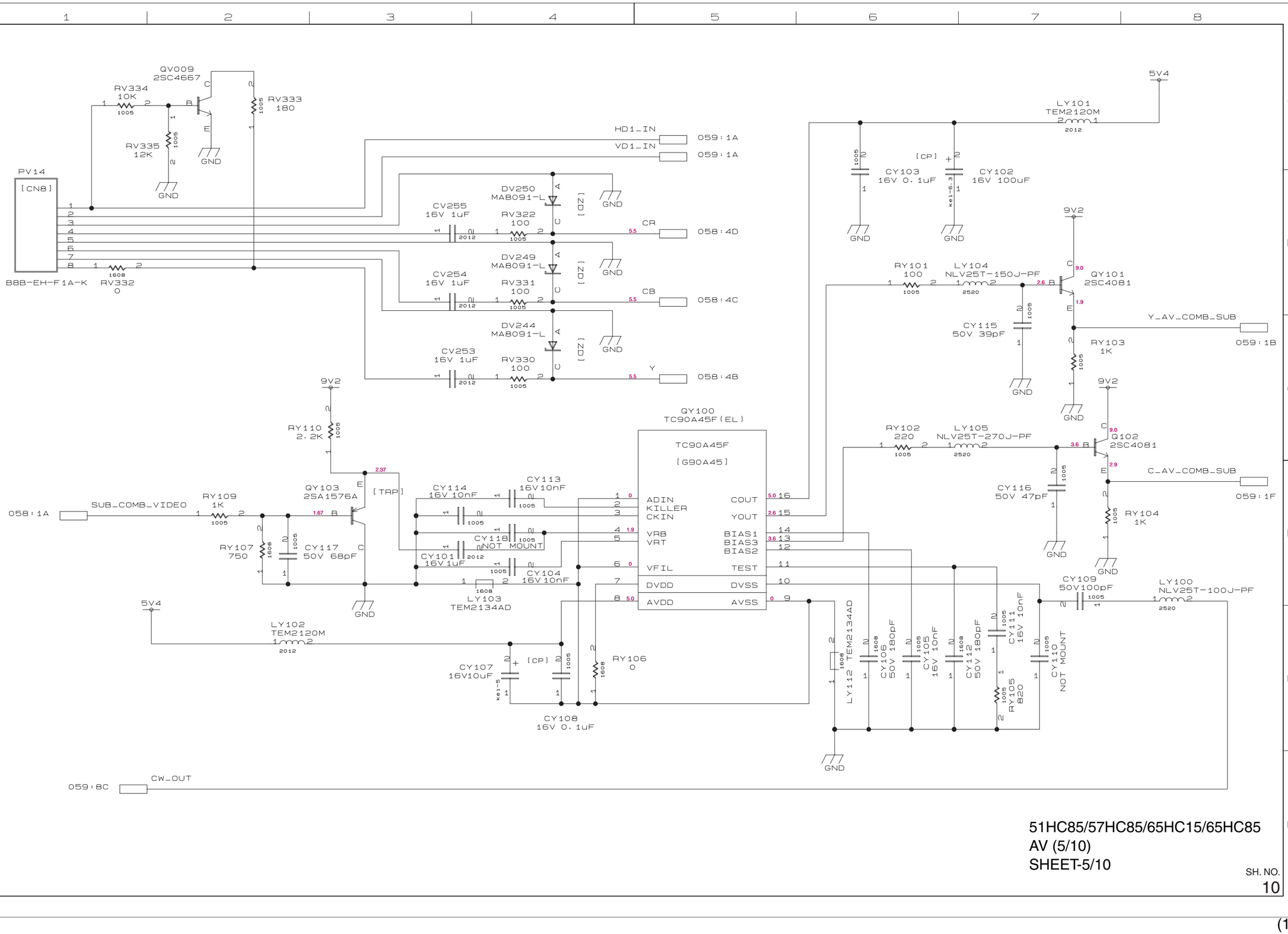
51HC85/57HC85/65HC15/65HC85
AV (3/10)
SHEET-3/10

SH. NO.
5



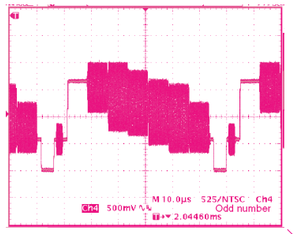
51HC85/57HC85/65HC15/65HC85
AV (4/10)
SHEET-4/10

SH. NO.
7



51HC85/57HC85/65HC15/65HC85
AV (5/10)
SHEET-5/10

SH. NO.
10



SY_2
RV006 100 1005
QV005 2SC4081
RV005 2.2K 1005
GND
Y_SW1
029:2E
9V2
RV007 2.2K 1005
V_AV_MC
022:1E:025:2B
RV008 100 1608
[TRP] QV004 2SA1576A
RV003 2.2K 1005
PB_SW1
029:2D
PB_1_2
RV004 100 1005
QV006 2SC4081
RV001 2.2K 1005
PR_SW1
029:2D
PR_1_2
RV002 100 1005
QV007 2SC4081

TC90A92F

PR_2_2
RV010 100 1005
QV001 2SC4081
RV009 2.2K 1005
PR_SW2
029:2B
PB_2_2
RV012 100 1005
QV002 2SC4081
RV011 2.2K 1005
PB_SW2
029:2B
Y_2_2
RV023 100 1005
QV003 2SC4081
RV013 2.2K 1005
Y_SW2
029:2C
Y_CD_SUB
RV025 100 1608
QV008 2SA1576A
RV024 2.2K 1005
V_SUB_MC
022:5E:025:2D

51HC85/57HC85/65HC15/65HC85
AV (6/10)
SHEET-6/10

SH. NO.
13

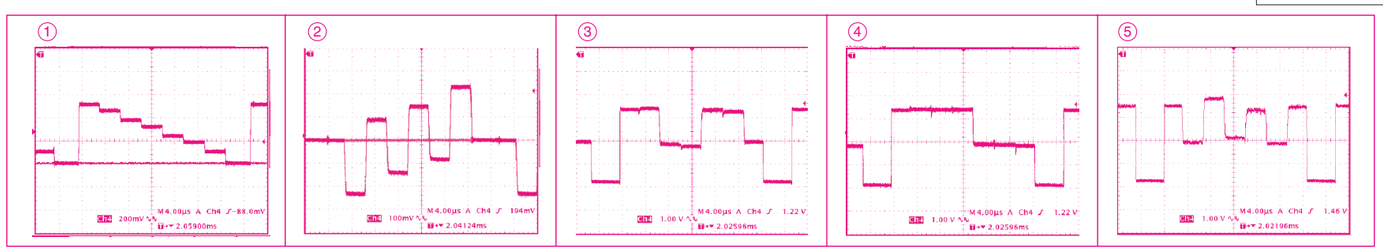
Q510
TA1360AFG

[U1360]
1/2

1	Ys2 (ANALOG_OSD)	Ys1 (ANALOG_OSD)	80
2	Ys3 (ANALOG_RGB)	YM/P-MUTE/BLK	79
3	NC	ABCL_IN	78
4	R_S/H	VSM_OUT	77
5	NC	NC	76
6	G_S/H	Y/C_Vcc	75
7	B_S/H	APL_FILTER	74
8	IK_IN	NC	73
9	NC	NC	72
10	RGB_GND	DARK_AREA_DET_FILTER	71
11	NC	BPH_FILTER	70
12 2.5	R_OUT	NC	69
13 2.5	G_OUT	Y1_IN	68
14 2.5	B_OUT	Cb1/Pb1_IN	67
15	NC	Cr1/Pr1_IN	66
16	RGB_Vcc	Y/C_GND	65
17	NC	LIGHT_AREA_DET_FILTER	64
18 5.0	ANALOG_OSD_R_IN	Y2_IN	63
19	ANALOG_OSD_G_IN	NC	62
20	NC	Cb2/Pb2_IN	61 5.0

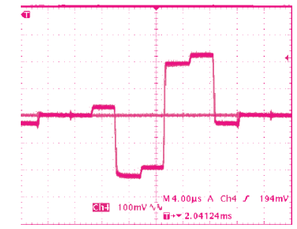
YS_OSD — 019:5A — R4715 100
VSM_OUT — 016:1E
YM_OSD — 019:5A
ABL — 026:4E
CONV_YS 049:1C:049:1D — R520 0 — R7866 470
D533 MB100-H [ZD]
D540 MB100-H [ZD]
9V2
GND
C531 16V0.1uF
C539 16V2.2uF
C537 16V0.1uF
C538 16V2.2uF
C536 16V0.1uF
C535 16V2.2uF
C530 NOT MOUNT
R225 100
R2104 4.7K
C206 16V 22uF
D502 1SS355
R245 100K
R513 10K
C520 25V 330nF [SBD] [ZD]
C515 NOT MOUNT
D512 NOT MOUNT
D513 NOT MOUNT
L501 TEM2134AD
C205 16V 2.2uF
C563 10V1uF
C564 16V 2.2uF
R559 220K
C5030 16V100uF
C5020 16V 10nF
C543 16V0.1uF
C544 16V0.1uF
C545 16V 0.1uF
C565 10V 1uF
CC26 50V 47pF
CC25 50V 47pF
C533 16V0.1uF
C532 16V 0.1uF
IK_IN 016:1F — GJ110 0
R_OUT 016:3B
G_OUT 016:3C — R2110 10K
B_OUT 016:3D — R2109 10K
R2108 10K
C513 16V 10nF
C5090 16V100uF
L503 TEM2134AD
R_OSD 021:4E
G_OSD 021:3C
CR15 16V 0.1uF
CR16 16V 0.1uF
9V_RGB 015:1C:015:1D
[TP] TP_B
[TP] TP_Y
[TP] TP_G
Y_SCAL — G-HYPER(#1)
GND — 030:8E G-HYPER(#2)
CB_SCAL — G-HYPER(#3)
GND — 030:8D G-HYPER(#4)

① ② ③ ④ ⑤



51HC85/57HC85/65HC15/65HC85
AV (7/10)
SHEET-7/10

SH. NO.
14



Q510
TA1360AFG

[U1360]
2/2

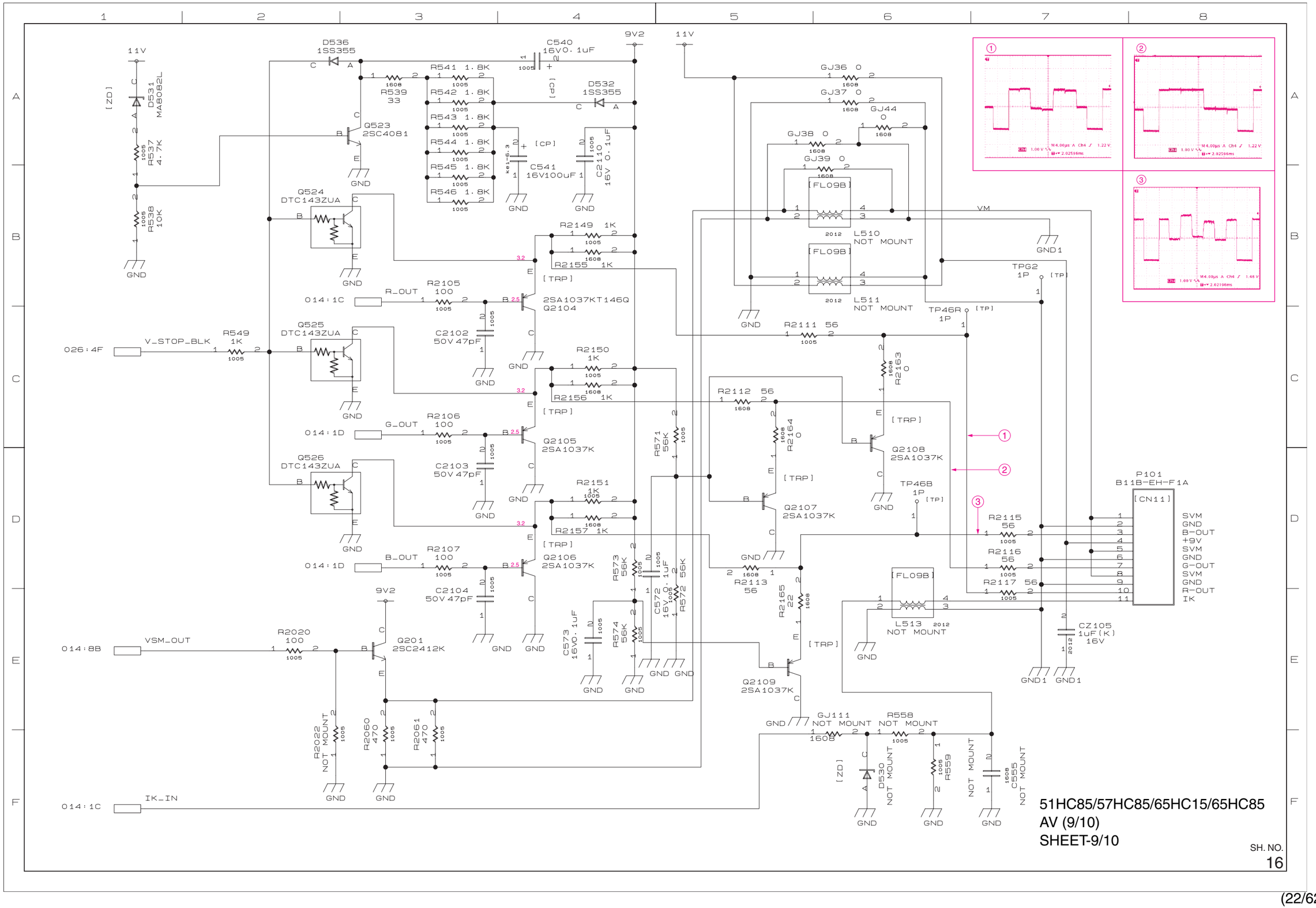
021:3B	B_OSD	21	ANALOG_OSD_B_IN	Cr2/Pr2_IN	60
014:1E:015:1D	9V_RGB	22	NC	NC	59
017:4A	OSD_R	23	DAC2 (ACB_PULSE)	COLOUR_LIMITER	58
017:4C	OSD_G	24	ANALOG_R_IN	VSM_FILTER	57
017:4E	OSD_B	25	ANALOG_G_IN	NC	56
XREF2	SDA1	26	ANALOG_B_IN	H-FREQ_SW1	55
XREF1	SCL1	27	I2L_GND	NC	54
		28	SDA	SYNC_IN	53
		29	NC	VD_IN	52
		30	SCL	NC	51
		31	I2L_VDD	HD_IN	50
		32	NC	SCP_IN	49
		33	NC	NC	48
014:1E:015:1C	9V_RGB	34	DAC1 (SYNC_OUT)	CP_OUT	47
	VP_Q510	35	VP_OUT	NC	46
021:5E:026:4F:050:1C		36	NC	DEF/DAC_Vcc	45
026:4E	H_OUT	37	H-OUT	AFC_FILTER	44
021:5D:026:4E	AFC	38	DEF/DAC_GND	NC	43
		39	FBP_IN	HVCO	42
026:4F	H_PHA_COM	40	H_CURVE_CORRECTION	H-FREQ_SW2	41

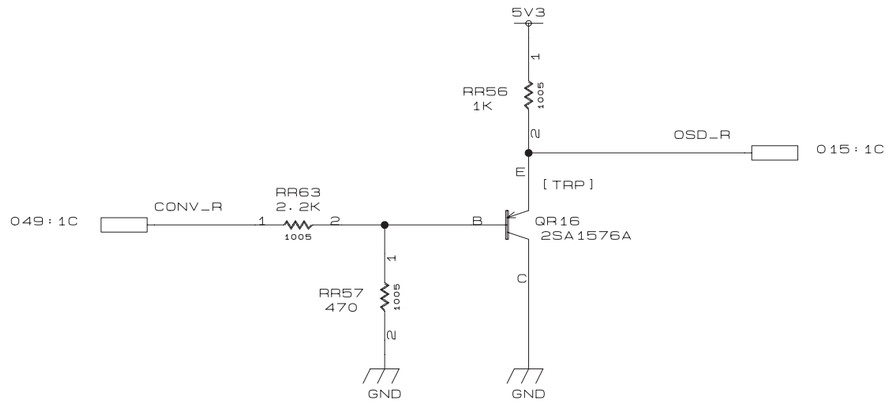
CR17 16V0.1uF 1005
R531 10K 1005
CR12 16V0.1uF 1005
CR13 16V0.1uF 1005
CR14 16V0.1uF 1005
R5020 100 1005
R5030 100 1005
C548 16V100uF ke1-6.3 [CP]
C547 16V10nF 1005
D4703 1SS355
R532 10K 1005
R4414 0Ω 1608
L4010 TEM2134AD
R4411 100 1005
R4412 100 1005
D4604 1SS355
D4606 1SS355
C4602 50V1000uF 1005
R4605 330 1005
C4603 50V470pF 1608
R4407 220 1608
C4406 16V 10nF 1005
R533 100
R4606 NOT MOUNT 1005
D4605 MA8100-M [ZD]
R561 180 5025
R4409 4.7K 1005
C4010 NOT MOUNT
D520 MA8027 C [ZD]
GND

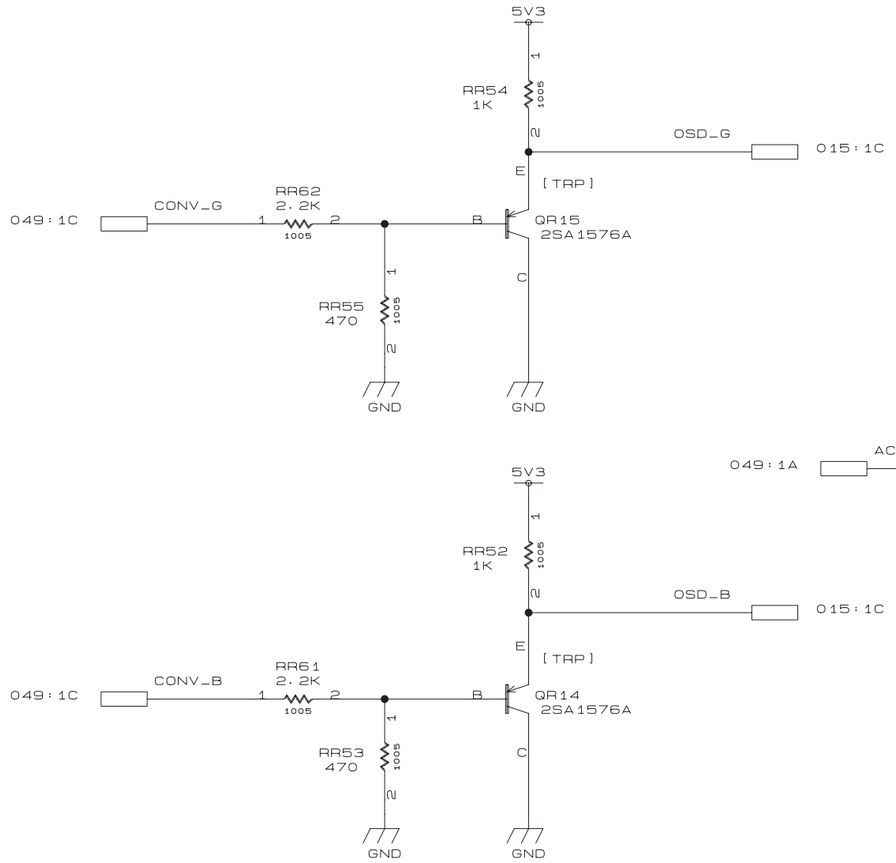
C534 16V0.1uF 1005
CC27 50V47pF 1005
C4412 16V0.1uF 1005
C5080 10V 1uF 1608
[TP] TP_R
CR_SCAL
G-HYPER(#5) 030:8D
G-HYPER(#6)
R4406 10K 1005
[TP] VD_UP
C505 0Ω 1005
017:7D
R555 100 1005
VD_UP
G-HYPER(#7) 021:5E:030:8C
[TP] HD_UP
R554 100 1005
HD_UP
G-HYPER(#8) 021:5D:030:8C
G-HYPER(#9)
C4420 NOT MOUNT 1005
C4407 NOT MOUNT 1005
D4401 MA8100-M [DZ]
L4401 NLV25T-101J-PF 2520 HVCC
027:4B
X4402 503kHZ [X]
R4401 4.7K 1005
C4403 10V 1uF 1608
C4031 NOT MOUNT 1005
R4405 1K 1005
C558 16V10nF 1005
C4405 16V0.1uF 1005
R4413 560 1005
C4404 16V 10nF 1005
C4402 16V 10nF 1005
C4401 16V220uF ke1-8 [CP]
R4403 470 1005
ABL_SW
026:4E

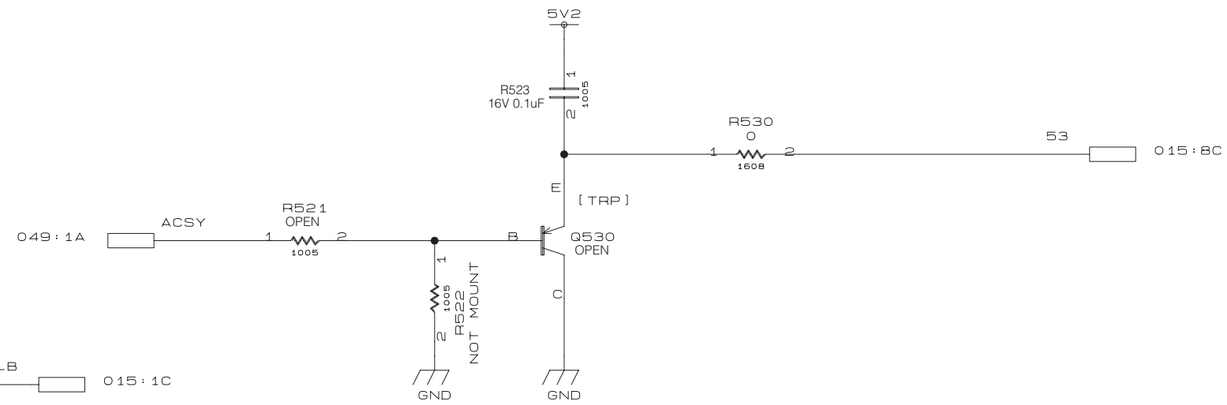
51HC85/57HC85/65HC15/65HC85
AV (8/10)
SHEET-8/10

SH. NO.
15


11V
9V2
D536 1SS355
C540 16V0.1uF
R541 1.8K
R542 1.8K
R543 1.8K
R544 1.8K
R545 1.8K
R546 1.8K
R539 33
D532 1SS355
[CP]
Q523 2SC4081
C541 16V100uF
C2110 16V 0.1uF
GND
[ZD]
D531 MA8082L
R537 4.7K
R538 10K
Q524 DTC143ZUA
R2149 1K
R2155 1K
[TRP]
014:1C
R_OUT
R2105 100
2SA1037KT146Q
Q2104
C2102 50V 47pF
026:4F
V_STOP_BLK
R549 1K
Q525 DTC143ZUA
R2150 1K
R2156 1K
014:1D
G_OUT
R2106 100
Q2105 2SA1037K
C2103 50V 47pF
Q526 DTC143ZUA
R2151 1K
R2157 1K
B_OUT
R2107 100
Q2106 2SA1037K
C2104 50V 47pF
R573 56K
C572 0.1uF 16V
R572 56K
C573 16V0.1uF
R574 56K
014:8B
VSM_OUT
R2020 100
Q201 2SC2412K
R2022 NOT MOUNT
R2060 470
R2061 470
014:1C
IK_IN
GJ36 0
GJ37 0
GJ44 0
GJ38 0
GJ39 0
[FL09B]
L510 NOT MOUNT
L511 NOT MOUNT
VM
GND1
TPG2 1P
TP46R 1P
R2111 56
R2112 56
R2163 0
R2164 0
R571 56K
Q2108 2SA1037K
Q2107 2SA1037K
TP46B 1P
R2113 56
R2165 22
Q2109 2SA1037K
R2115 56
R2116 56
R2117 56
L513 NOT MOUNT
CZ105 1uF(K) 16V
P101 B11B-EH-F1A
[CN11]
SVM
GND
B-OUT
+9V
SVM
GND
G-OUT
SVM
GND
R-OUT
IK
GJ111 NOT MOUNT
R558 NOT MOUNT
D530 NOT MOUNT
R559
C555 NOT MOUNT
①
②
③
M4.06µs A Ch4 ƒ 1.22 V
2.02596ms
M4.00µs A Ch4 ƒ 1.46 V
2.02196ms
51HC85/57HC85/65HC15/65HC85
AV (9/10)
SHEET-9/10
SH. NO.
16

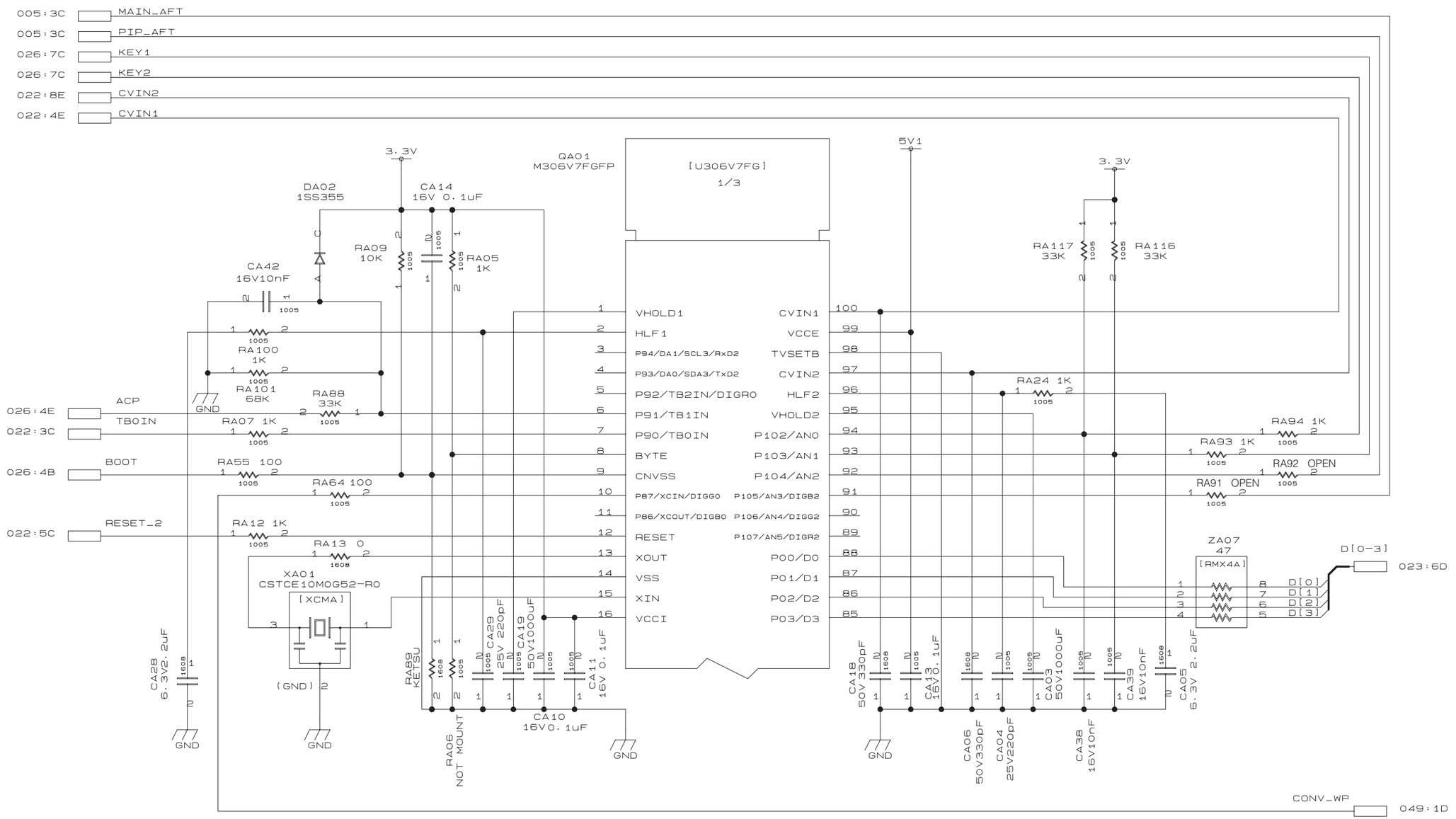






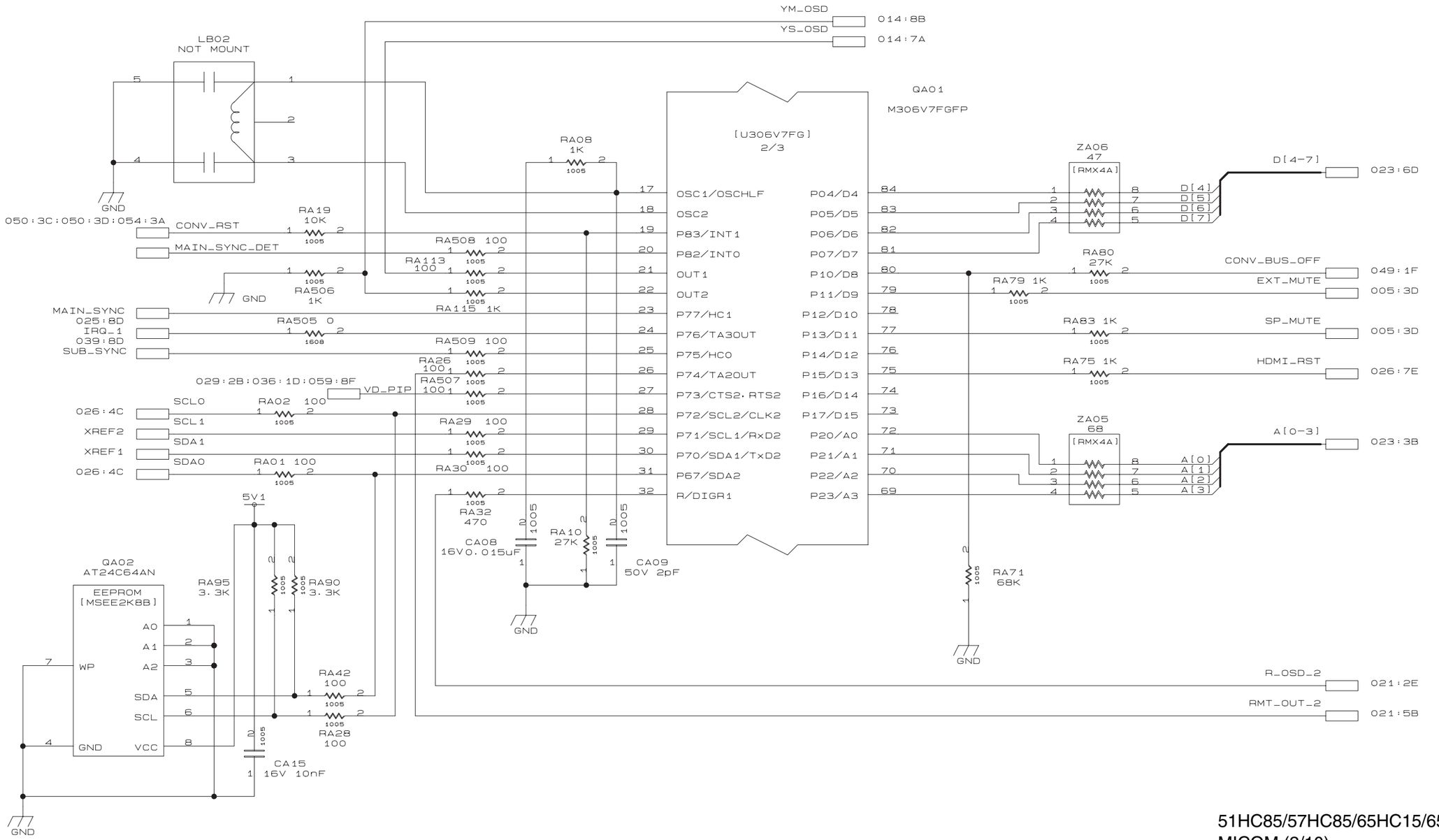
51HC85/57HC85/65HC15/65HC85
AV (10/10)
SHEET-10/10

SH. NO.
17



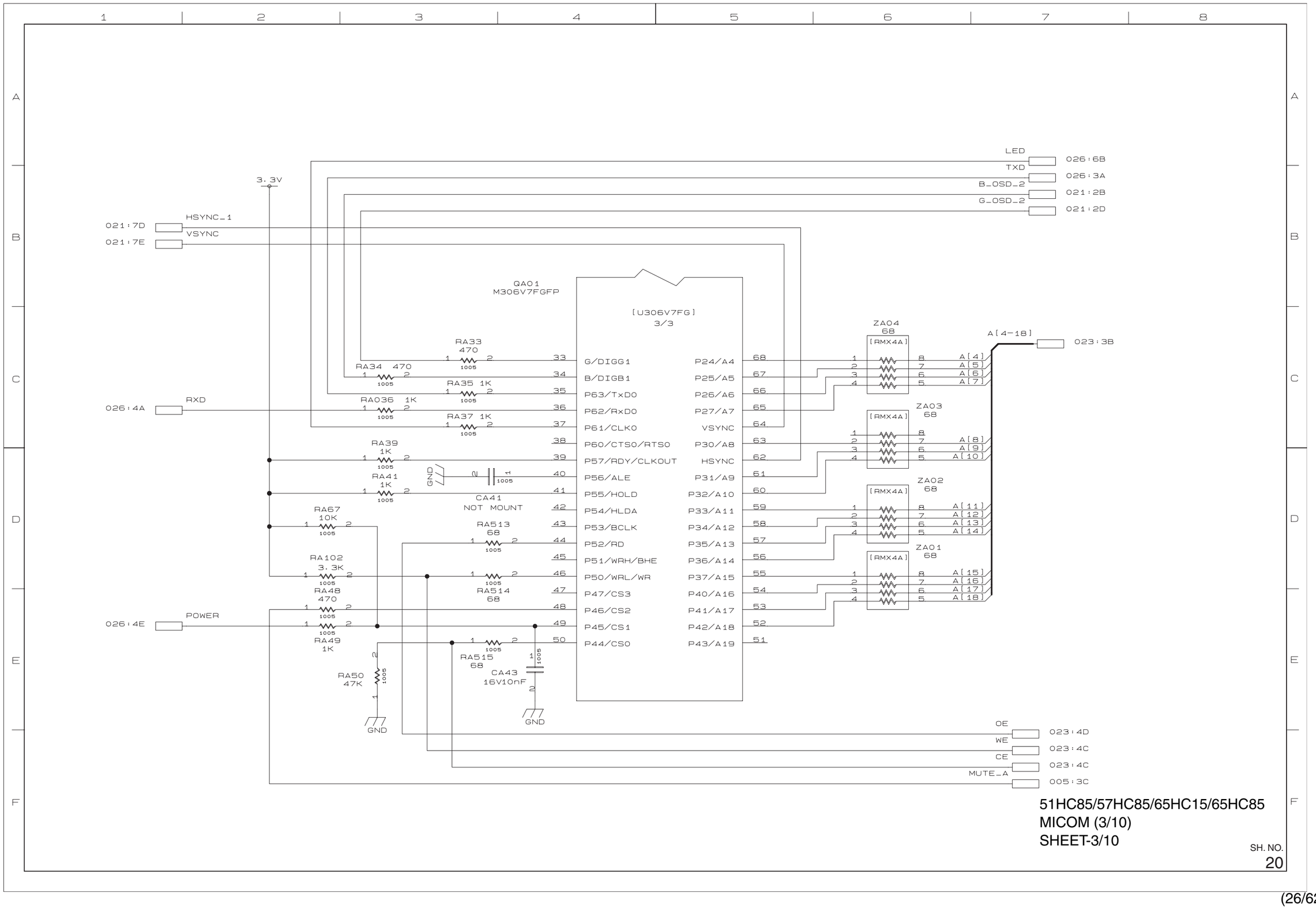
51HC85/57HC85/65HC15/65HC85
MICOM (1/10)
SHEET-1/10

SH. NO.
18



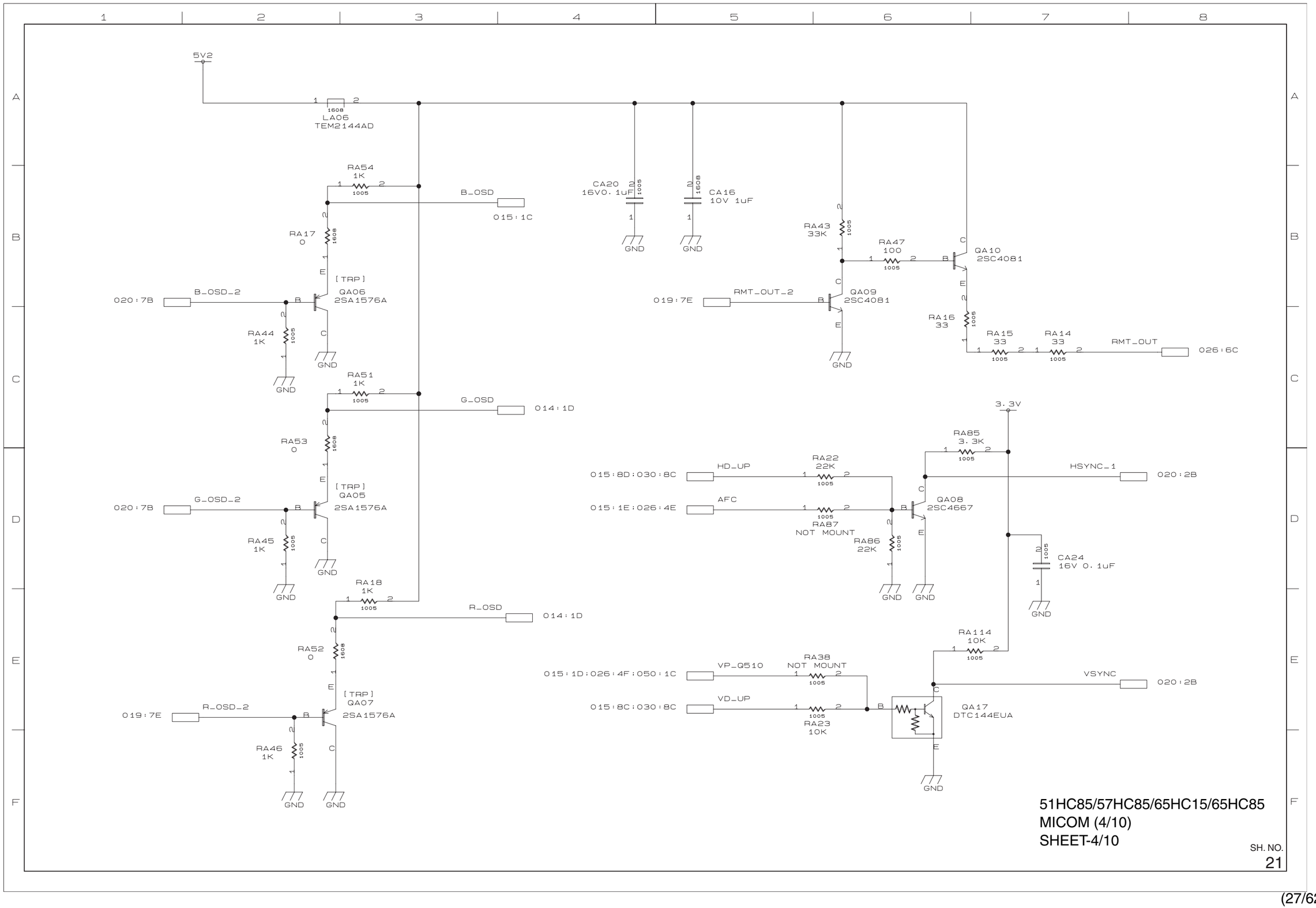
51HC85/57HC85/65HC15/65HC85
MICOM (2/10)
SHEET-2/10

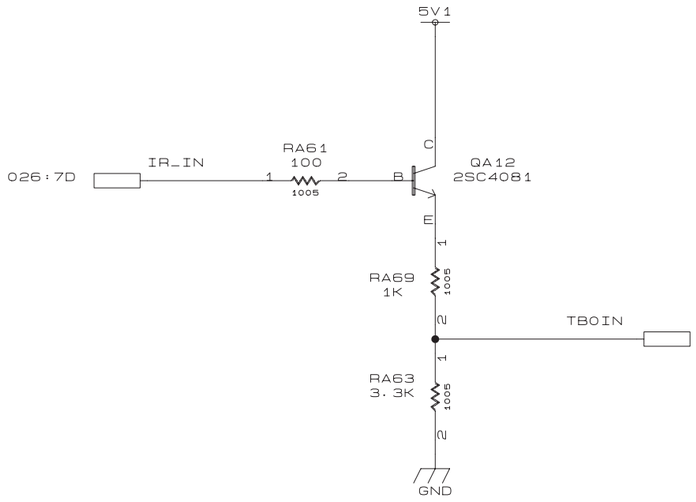
SH. NO.
19

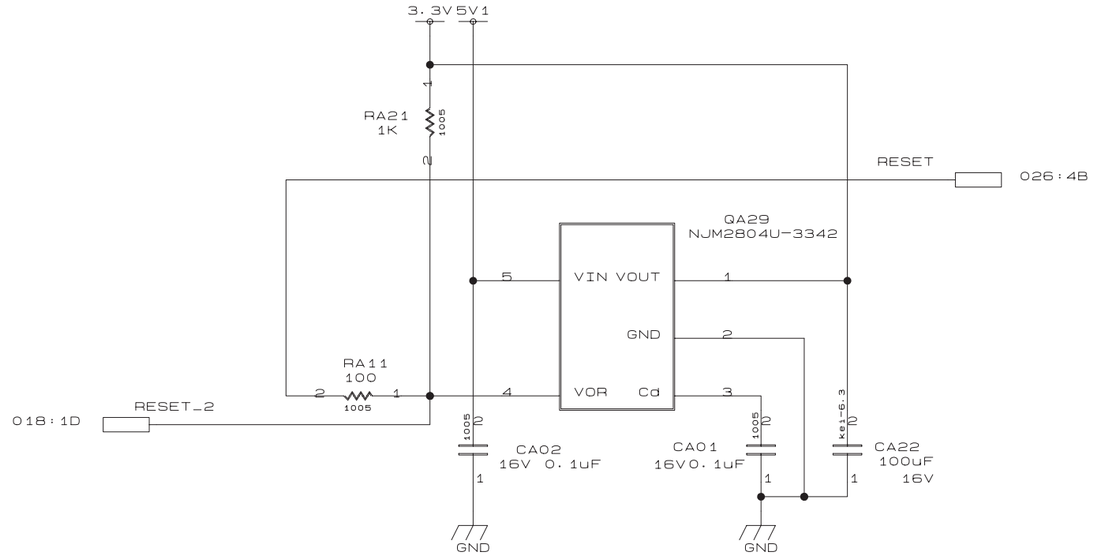


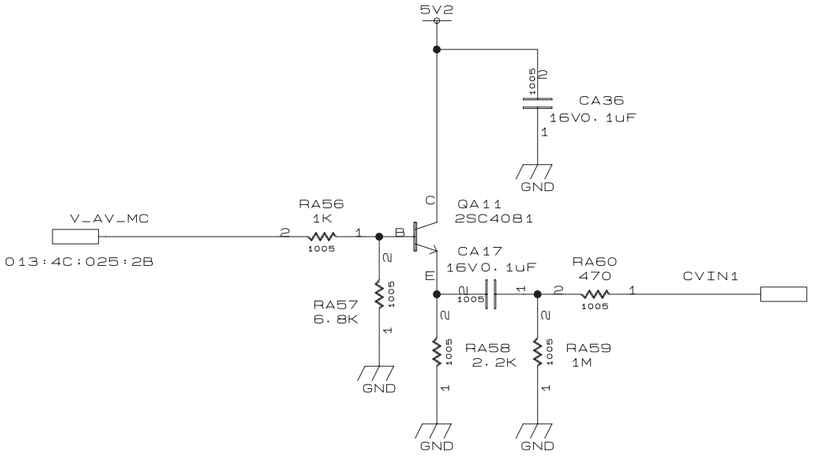
51HC85/57HC85/65HC15/65HC85
MICOM (3/10)
SHEET-3/10

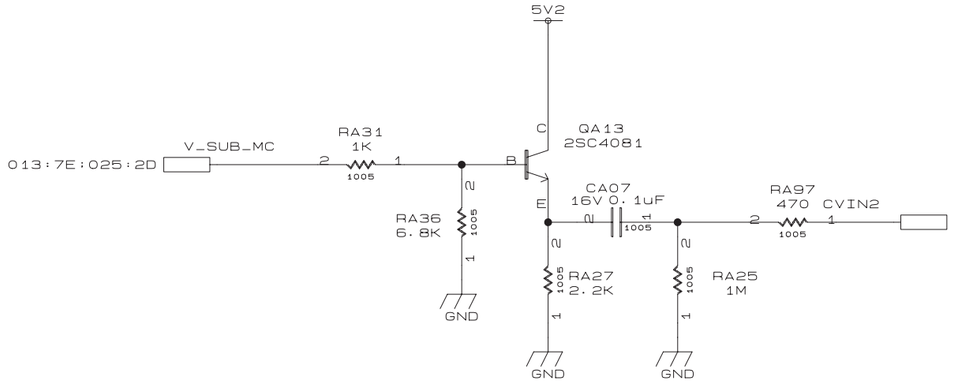
SH. NO.
20


5V2
LA06
TEM2144AD
RA54
1K
B_OSD
015:1C
RA17
0
[TRP]
020:7B
B_OSD_2
QA06
2SA1576A
RA44
1K
GND
RA51
1K
G_OSD
014:1D
RA53
0
[TRP]
QA05
020:7B
G_OSD_2
2SA1576A
RA45
1K
GND
RA18
1K
R_OSD
014:1D
RA52
0
[TRP]
QA07
019:7E
R_OSD_2
2SA1576A
RA46
1K
GND
CA20
16V0.1uF
CA16
10V 1uF
GND
RA43
33K
RA47
100
QA10
2SC4081
019:7E
RMT_OUT_2
QA09
2SC4081
RA16
33
RA15
33
RA14
33
RMT_OUT
026:6C
GND
3.3V
RA85
3.3K
HSYNC_1
020:2B
015:8D:030:8C
HD_UP
RA22
22K
015:1E:026:4E
AFC
QA08
2SC4667
RA87
NOT MOUNT
RA86
22K
CA24
16V 0.1uF
GND
RA114
10K
VSYNC
020:2B
015:1D:026:4F:050:1C
VP_Q510
RA38
NOT MOUNT
015:8C:030:8C
VD_UP
RA23
10K
QA17
DTC144EUA
GND
51HC85/57HC85/65HC15/65HC85
MICOM (4/10)
SHEET-4/10
SH. NO.
21



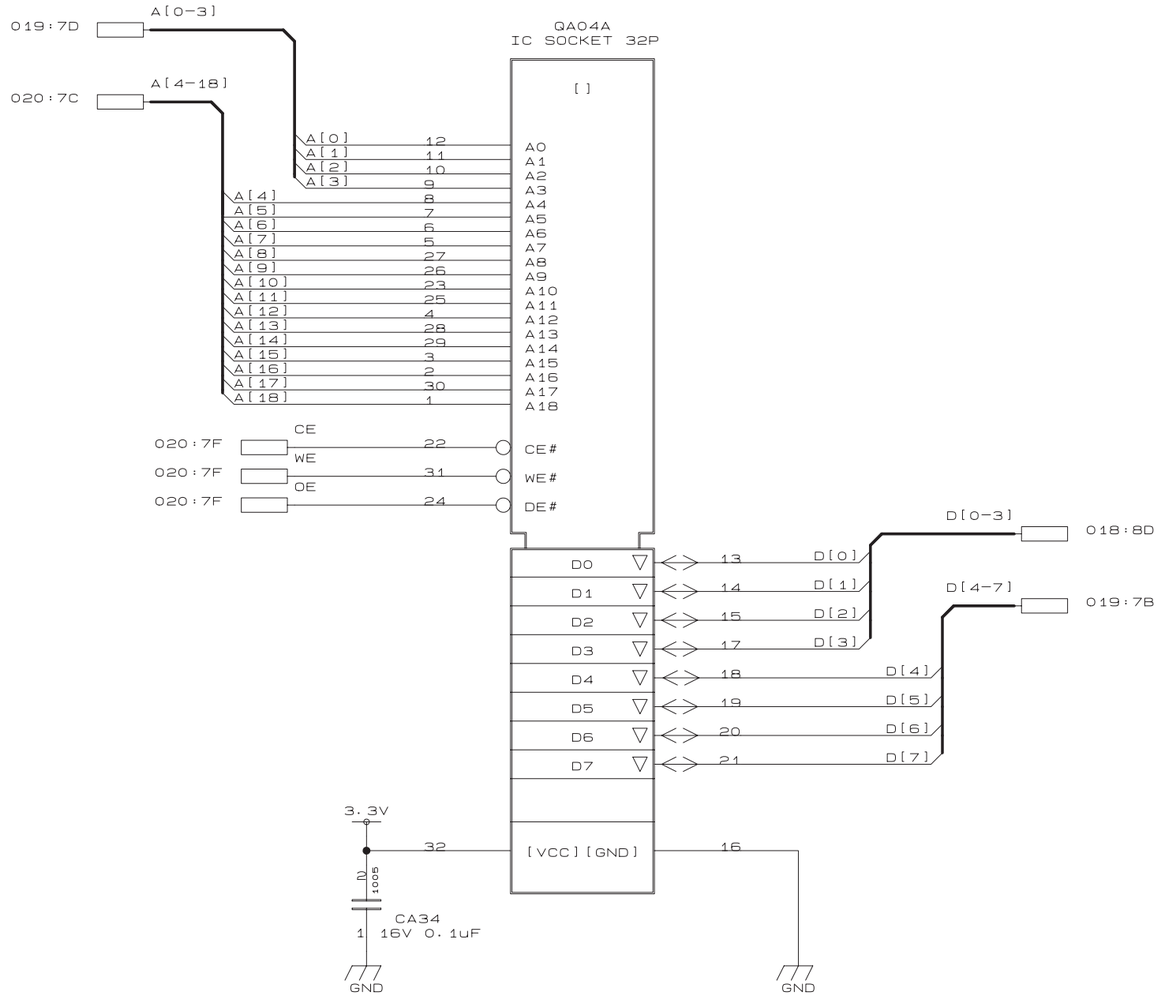






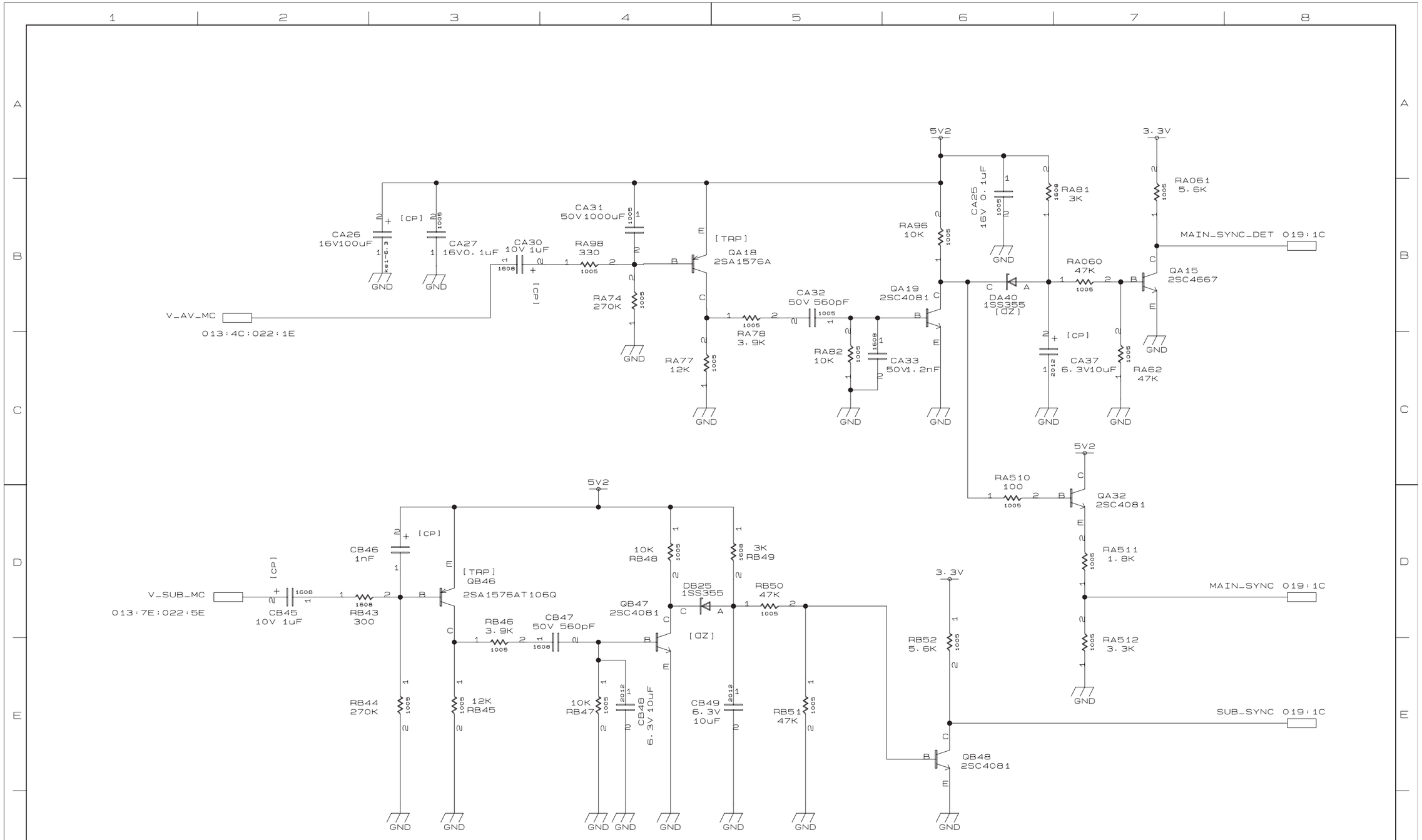
51HC85/57HC85/65HC15/65HC85
MICOM (5/10)
SHEET-5/10

SH. NO.
22



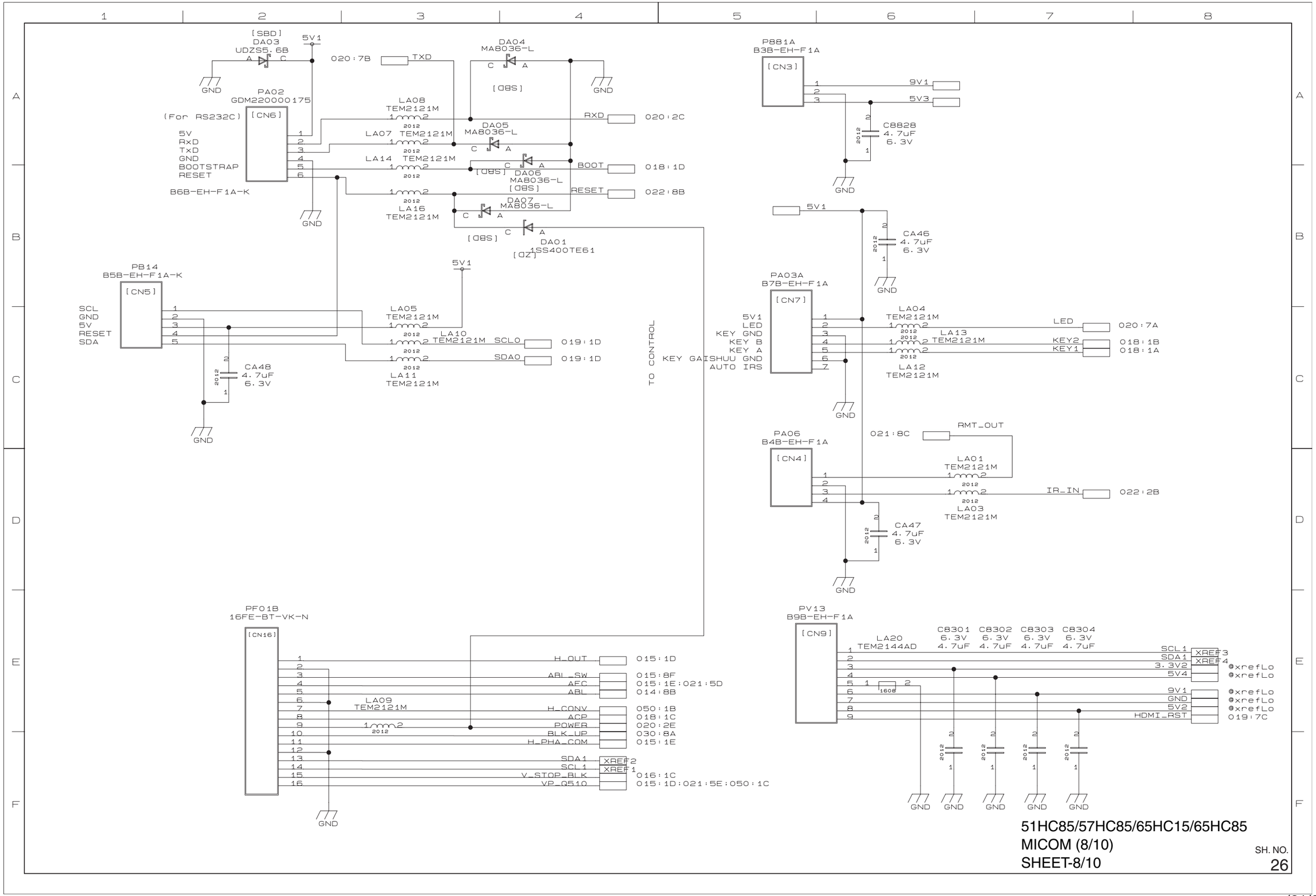
51HC85/57HC85/65HC15/65HC85
MICOM (6/10)
SHEET-6/10

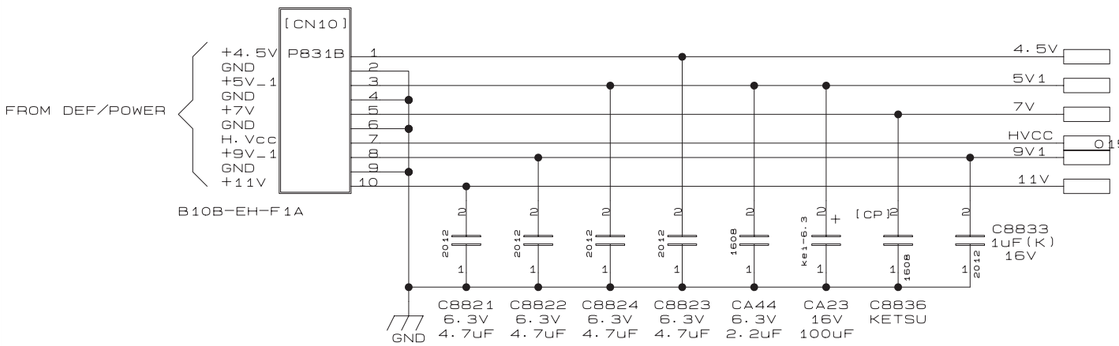
SH. NO.
23

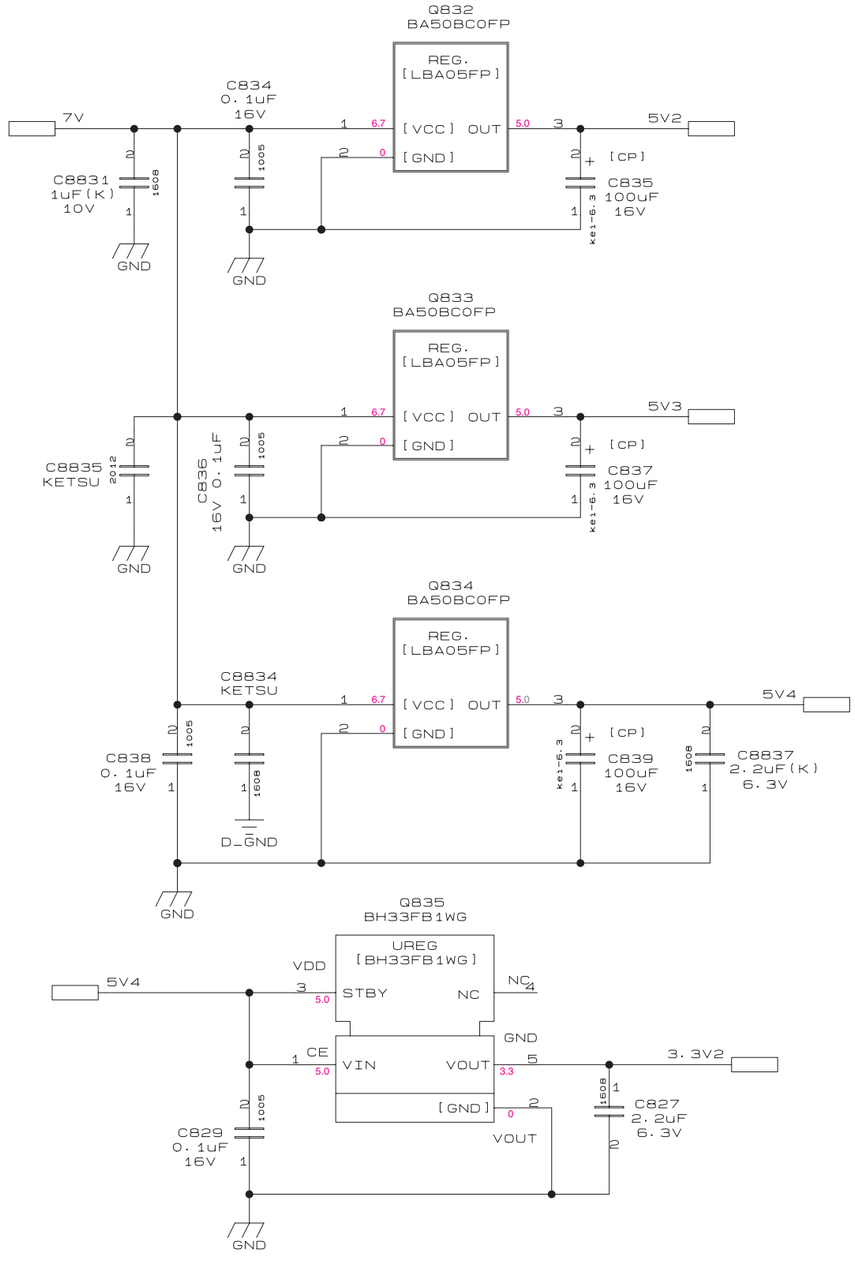


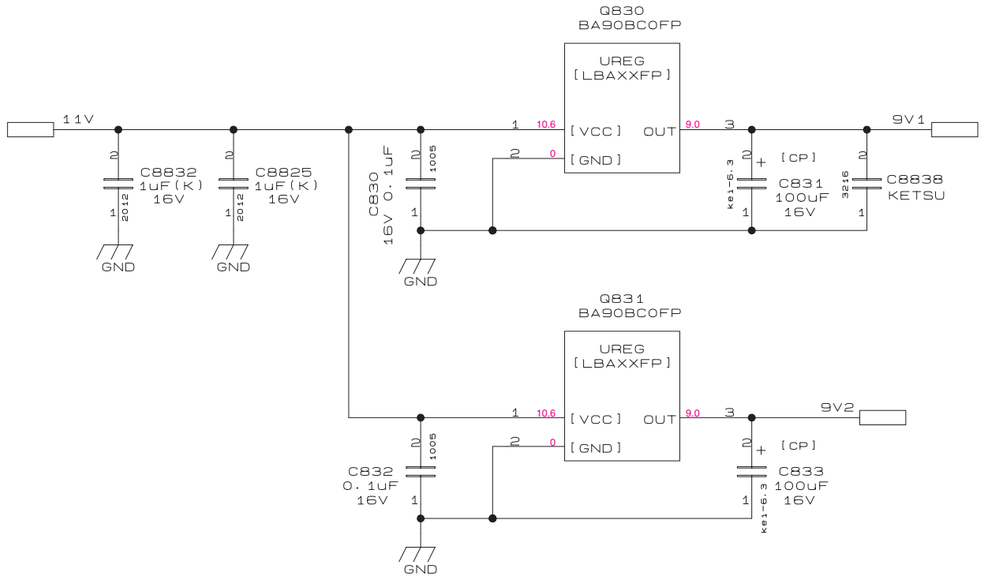
51HC85/57HC85/65HC15/65HC85
MICOM (7/10)
SHEET-7/10

SH. NO.
25


[SBD]
DA03
UDZS5.6B
5V1
020:7B
TXD
DA04
MA8036-L
[DBS]
GND
PA02
GDM220000175
(For RS232C)
[CN6]
5V
RxD
TxD
GND
BOOTSTRAP
RESET
B6B-EH-F1A-K
LA08
TEM2121M
2012
RXD
020:2C
LA07 TEM2121M
DA05
MA8036-L
LA14 TEM2121M
BOOT
018:1D
DA06
MA8036-L
RESET
022:8B
LA16
TEM2121M
DA07
MA8036-L
DA01
1SS400TE61
[DZ]
P881A
B3B-EH-F1A
[CN3]
9V1
5V3
C8828
4.7uF
6.3V
CA46
4.7uF
6.3V
PB14
B5B-EH-F1A-K
[CN5]
SCL
GND
5V
RESET
SDA
LA05
TEM2121M
LA10
TEM2121M
SCL0
019:1D
SDA0
019:1D
LA11
TEM2121M
CA48
4.7uF
6.3V
TO CONTROL
KEY GAISHUU
PA03A
B7B-EH-F1A
[CN7]
5V1
LED
KEY GND
KEY B
KEY A
GND
AUTO IRS
LA04
TEM2121M
LED
020:7A
LA13
TEM2121M
KEY2
018:1B
KEY1
018:1A
LA12
TEM2121M
PA06
B4B-EH-F1A
[CN4]
021:8C
RMT_OUT
LA01
TEM2121M
IR_IN
022:2B
LA03
TEM2121M
CA47
4.7uF
6.3V
PF01B
16FE-BT-VK-N
[CN16]
H_OUT
015:1D
ABL_SW
015:8F
AFC
015:1E:021:5D
ABL
014:8B
LA09
TEM2121M
H_CONV
050:1B
ACP
018:1C
POWER
020:2E
BLK_UP
030:8A
H_PHA_COM
015:1E
SDA1
SCL1
V_STOP_BLK
016:1C
VP_Q510
015:1D:021:5E:050:1C
PV13
B9B-EH-F1A
[CN9]
LA20
TEM2144AD
C8301
6.3V
4.7uF
C8302
6.3V
4.7uF
C8303
6.3V
4.7uF
C8304
6.3V
4.7uF
SCL1
SDA1
3.3V2
5V4
9V1
GND
5V2
HDMI_RST
@xrefLo
019:7C
1608
51HC85/57HC85/65HC15/65HC85
MICOM (8/10)
SHEET-8/10
SH. NO.
26

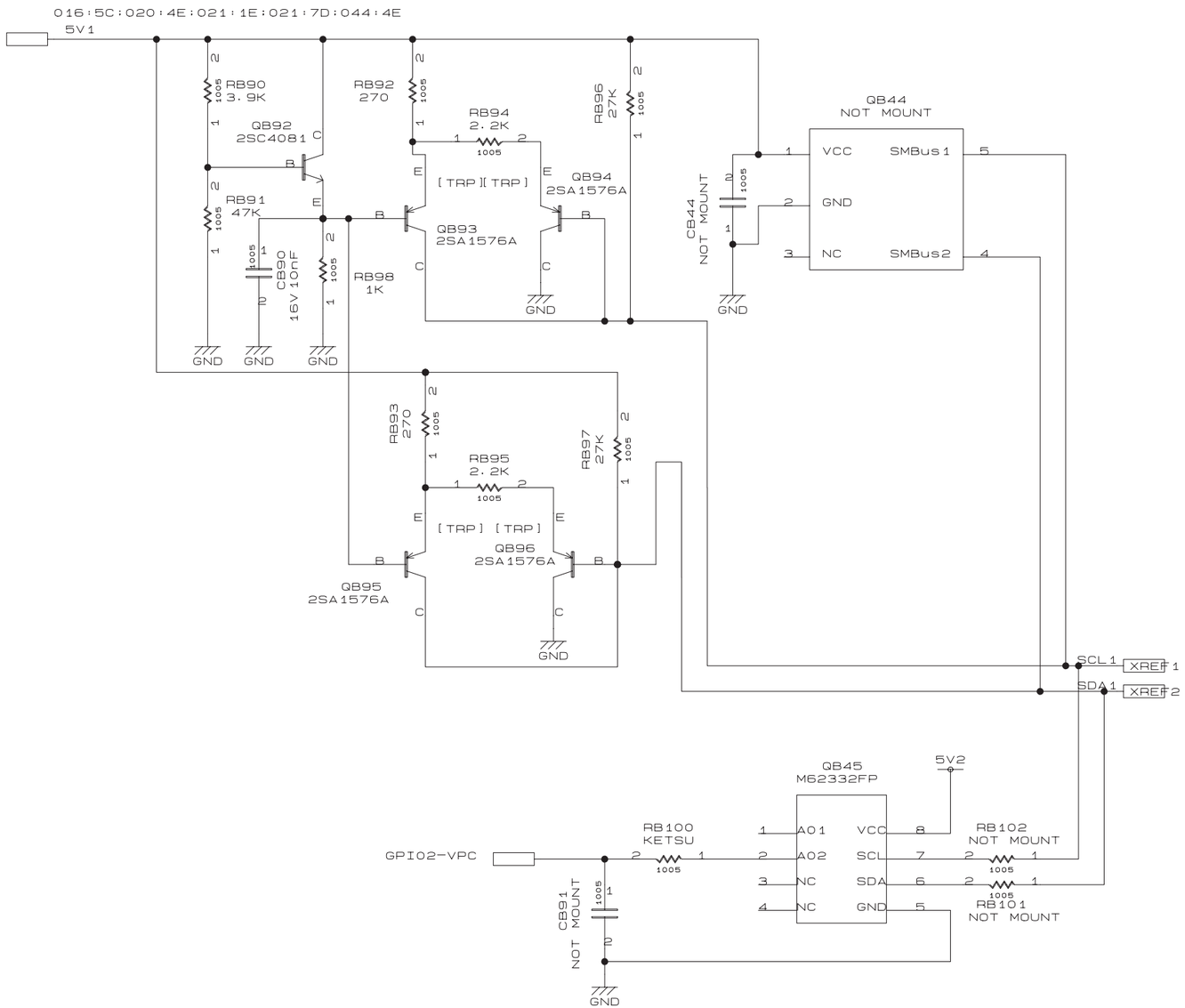






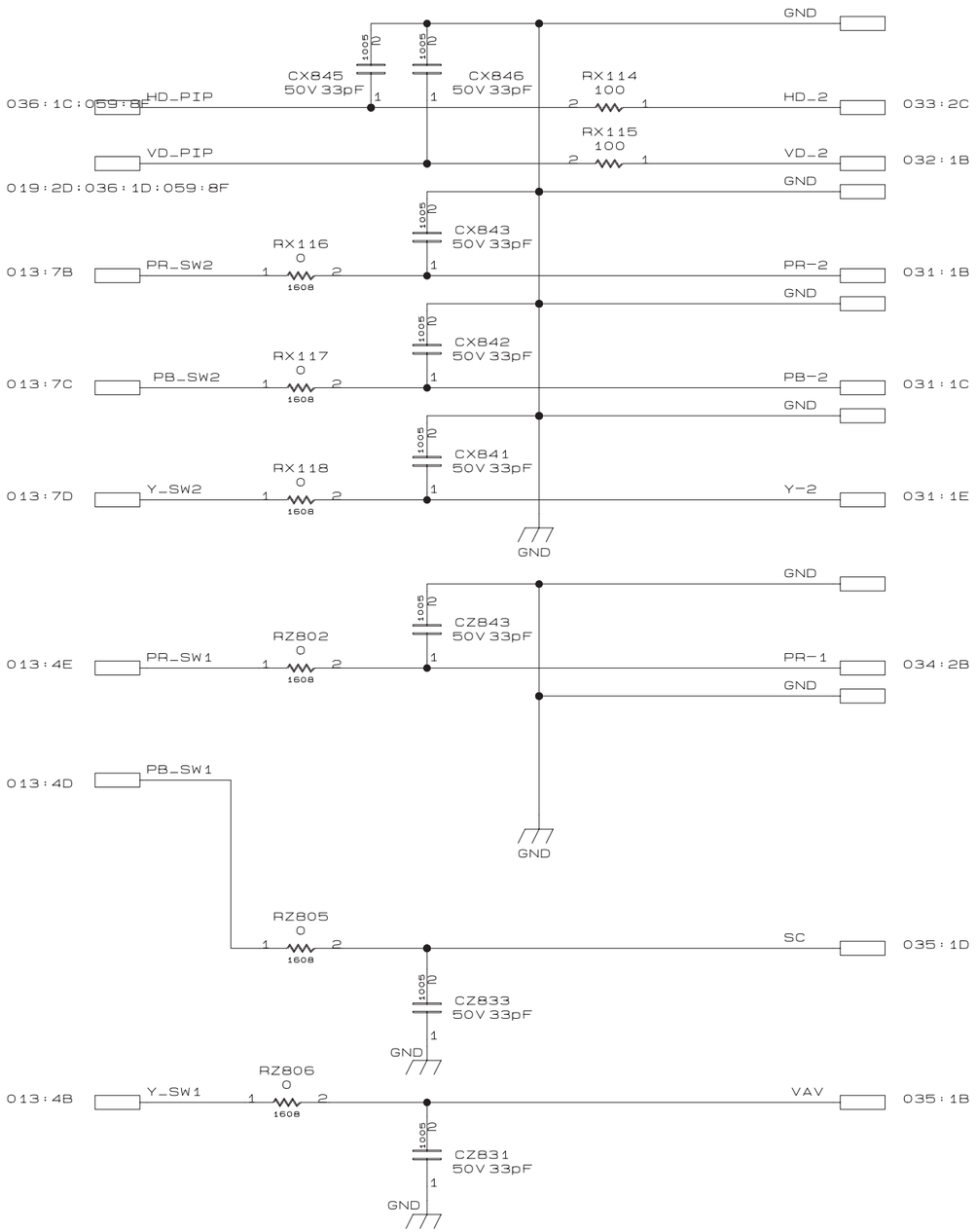
51HC85/57HC85/65HC15/65HC85
MICOM (9/10)
SHEET-9/10

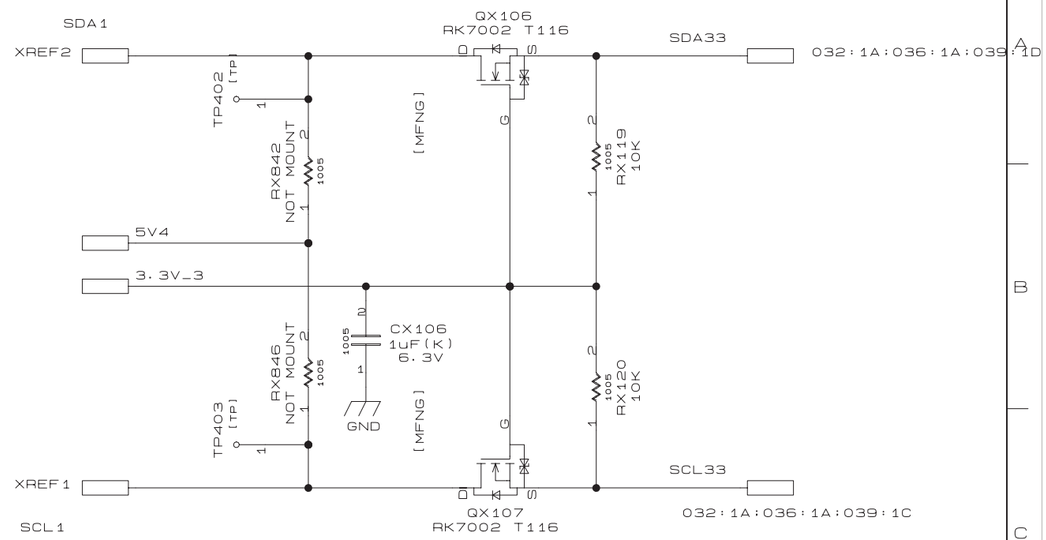
SH. NO.
27

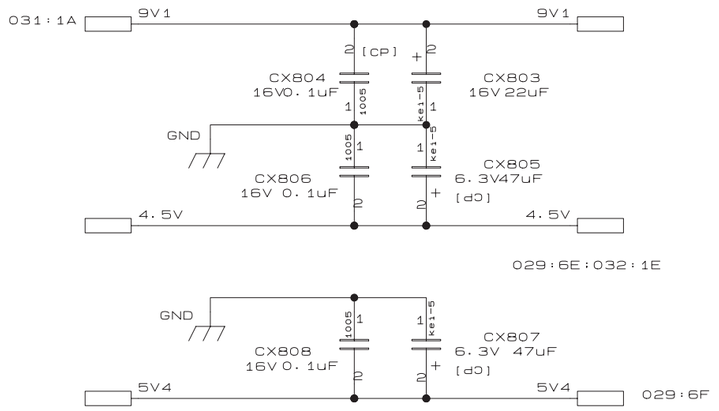


51HC85/57HC85/65HC15/65HC85
MICOM (10/10)
SHEET-10/10

SH. NO.
28

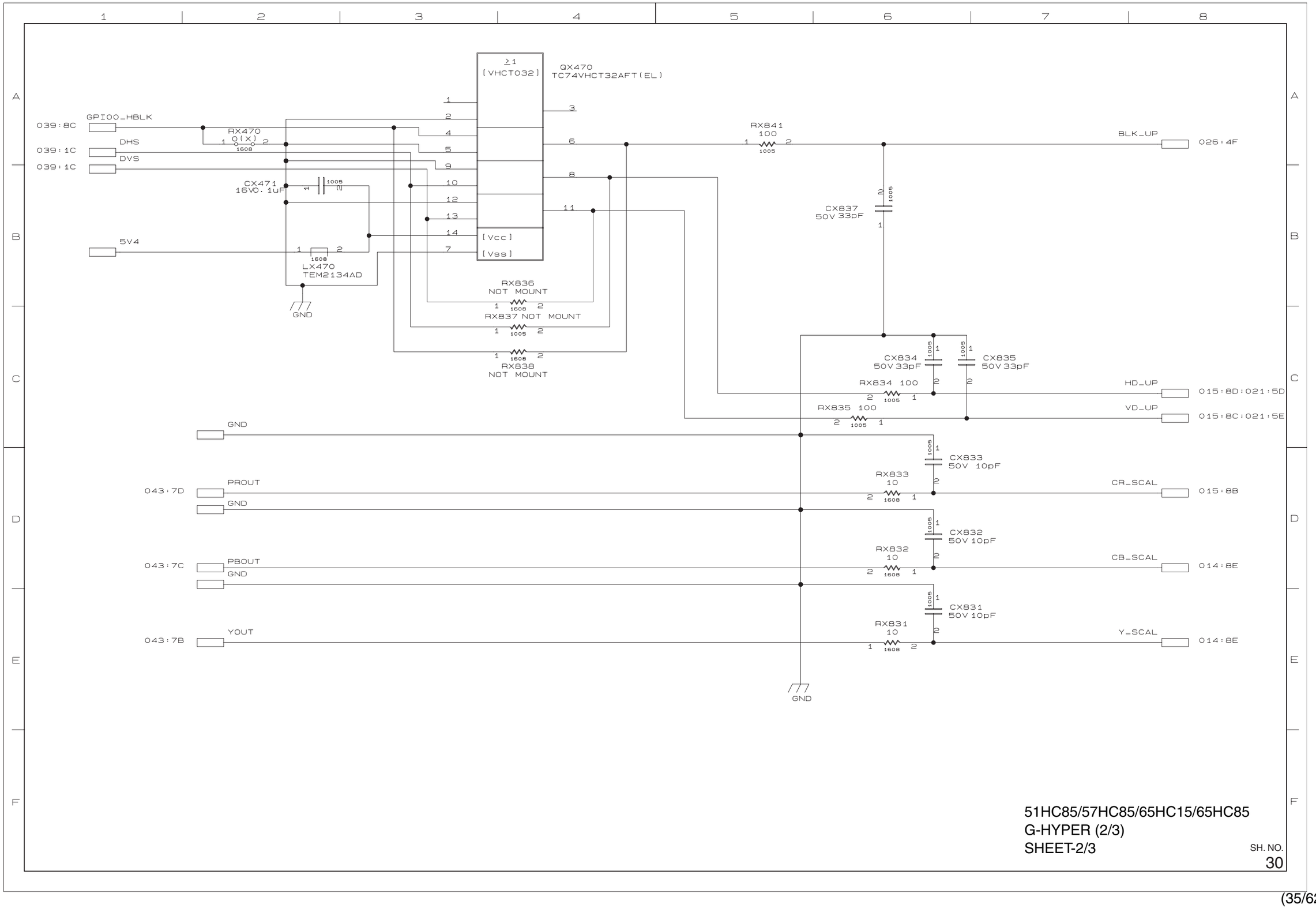






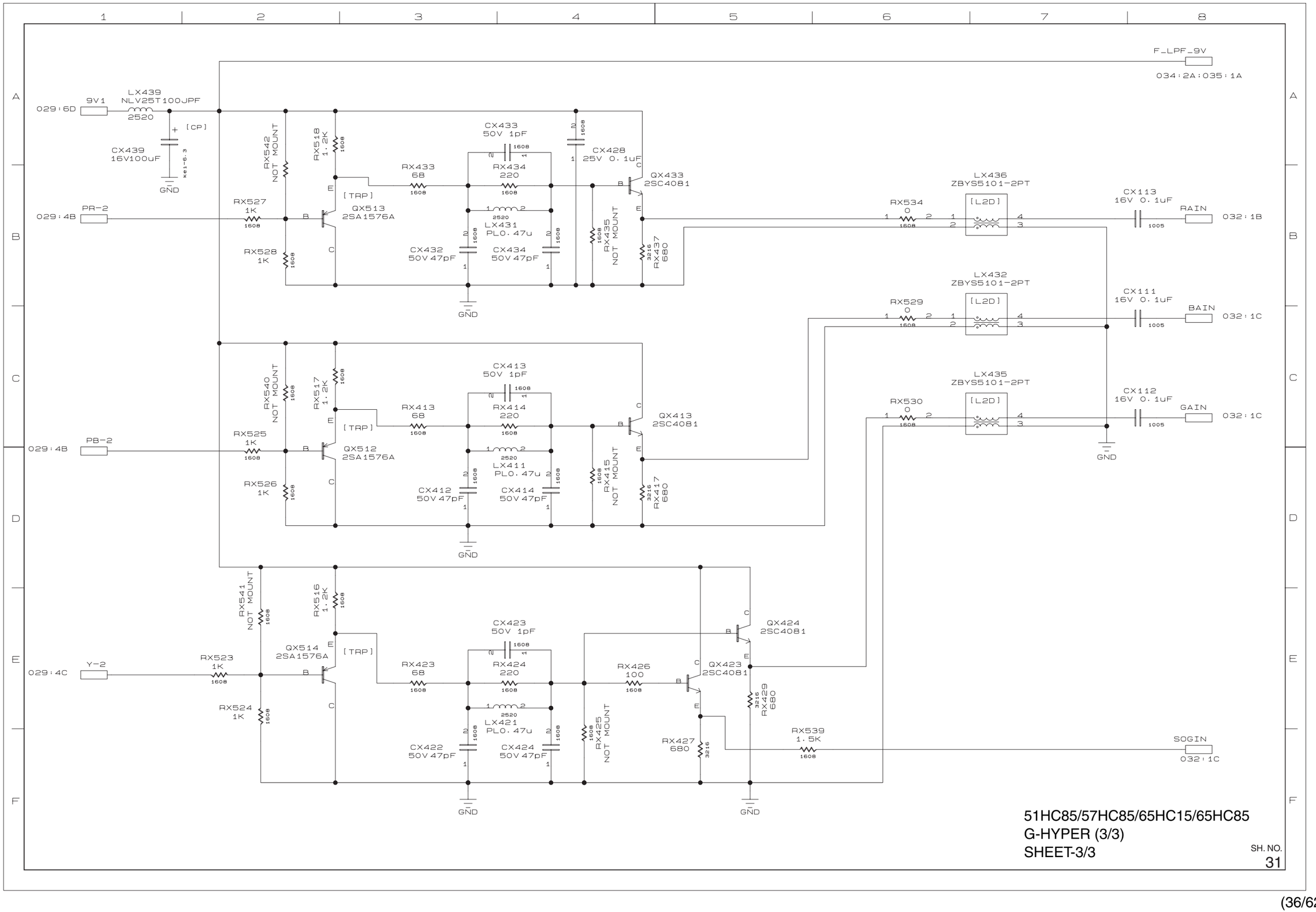
51HC85/57HC85/65HC15/65HC85
G-HYPER (1/3)
SHEET-1/3

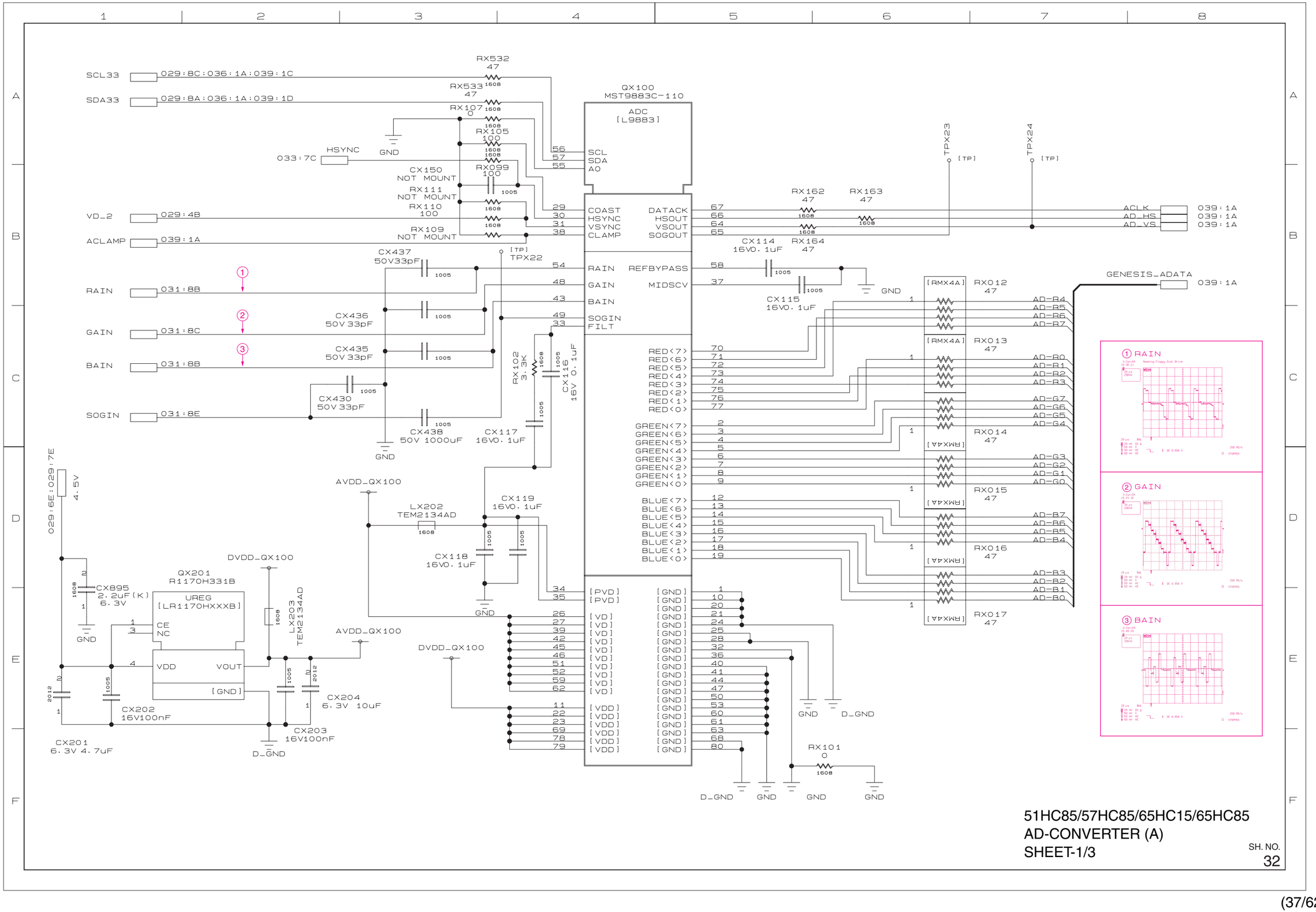
SH. NO.
29



51HC85/57HC85/65HC15/65HC85
G-HYPER (2/3)
SHEET-2/3

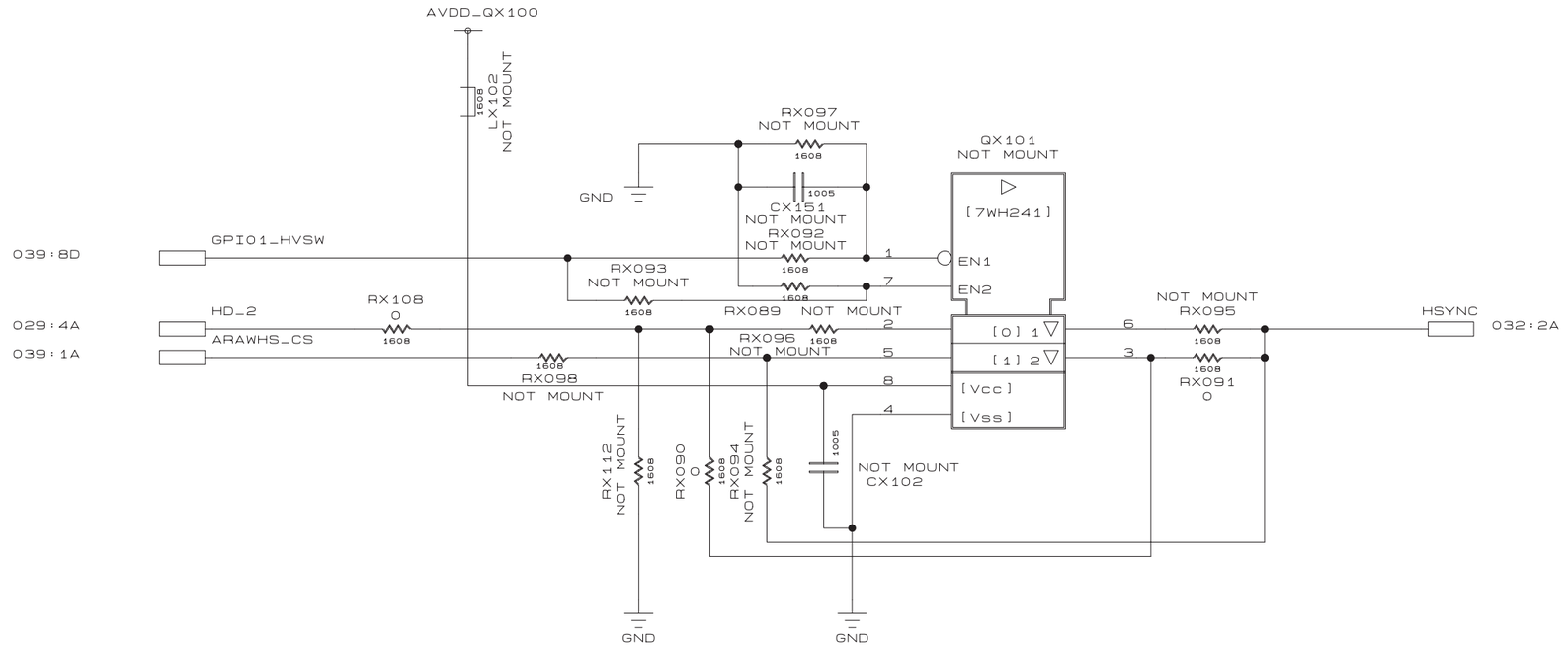
SH. NO.
30


F_LPF_9V
034:2A:035:1A
9V1
LX439
NLV25T100JPF
2520
029:6D
CX439
16V100uF
[CP]
GND
RX542
NOT MOUNT
RX518
1.2K
CX433
50V 1pF
CX428
25V 0.1uF
RX433
68
RX434
220
QX433
2SC4081
[TRP]
PR-2
029:4B
RX527
1K
QX513
2SA1576A
LX431
PLO.47u
RX528
1K
CX432
50V47pF
CX434
50V47pF
RX435
NOT MOUNT
RX437
680
LX436
ZBYS5101-2PT
[L2D]
RX534
0
CX113
16V 0.1uF
RAIN
032:1B
LX432
ZBYS5101-2PT
RX529
0
CX111
16V 0.1uF
BAIN
032:1C
LX435
ZBYS5101-2PT
RX530
0
CX112
16V 0.1uF
GAIN
032:1C
RX540
NOT MOUNT
RX517
1.2K
CX413
50V 1pF
RX413
68
RX414
220
QX413
2SC4081
[TRP]
PB-2
029:4B
RX525
1K
QX512
2SA1576A
LX411
PLO.47u
RX526
1K
CX412
50V47pF
CX414
50V47pF
RX415
NOT MOUNT
RX417
680
RX541
NOT MOUNT
RX516
1.2K
CX423
50V 1pF
QX424
2SC4081
QX514
2SA1576A
[TRP]
Y-2
029:4C
RX523
1K
RX423
68
RX424
220
RX426
100
QX423
2SC4081
RX524
1K
LX421
PLO.47u
CX422
50V47pF
CX424
50V47pF
RX425
NOT MOUNT
RX427
680
RX429
680
RX539
1.5K
SOGIN
032:1C
GND
51HC85/57HC85/65HC15/65HC85
G-HYPER (3/3)
SHEET-3/3
SH. NO.
31

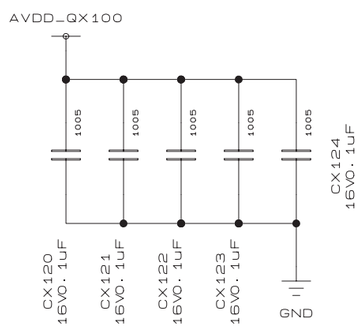


51HC85/57HC85/65HC15/65HC85
AD-CONVERTER (A)
SHEET-1/3

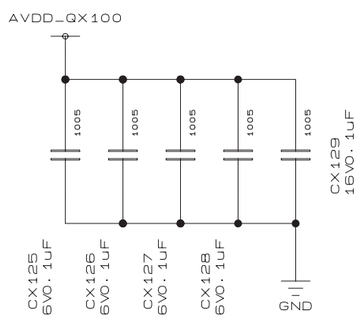
SH. NO.
32



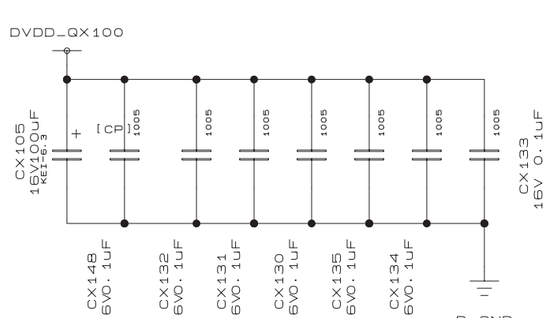
Capasitor for QX100



Capasitor for QX100

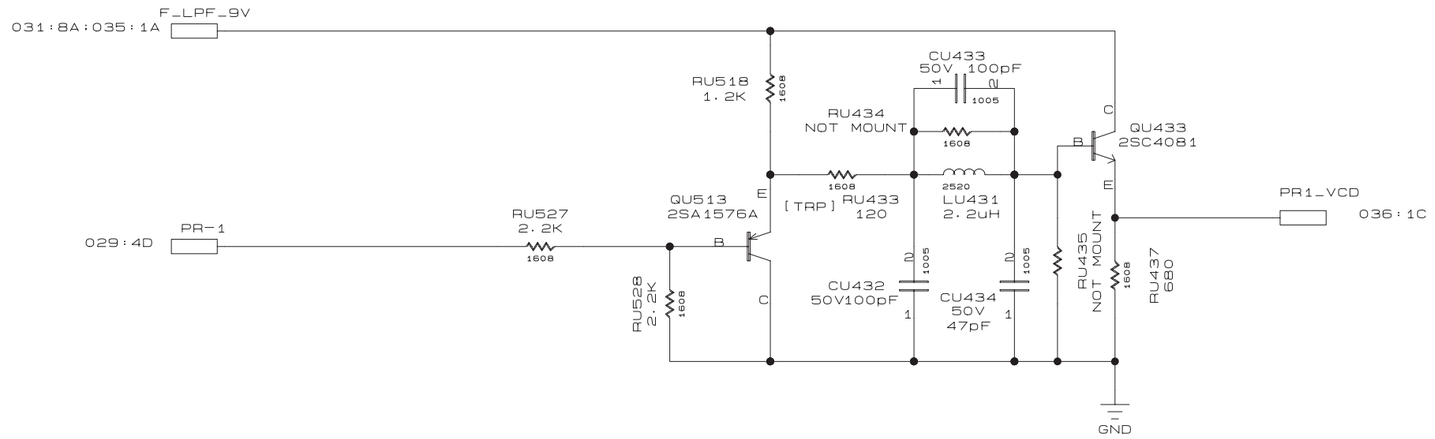


Capasitor for QX100



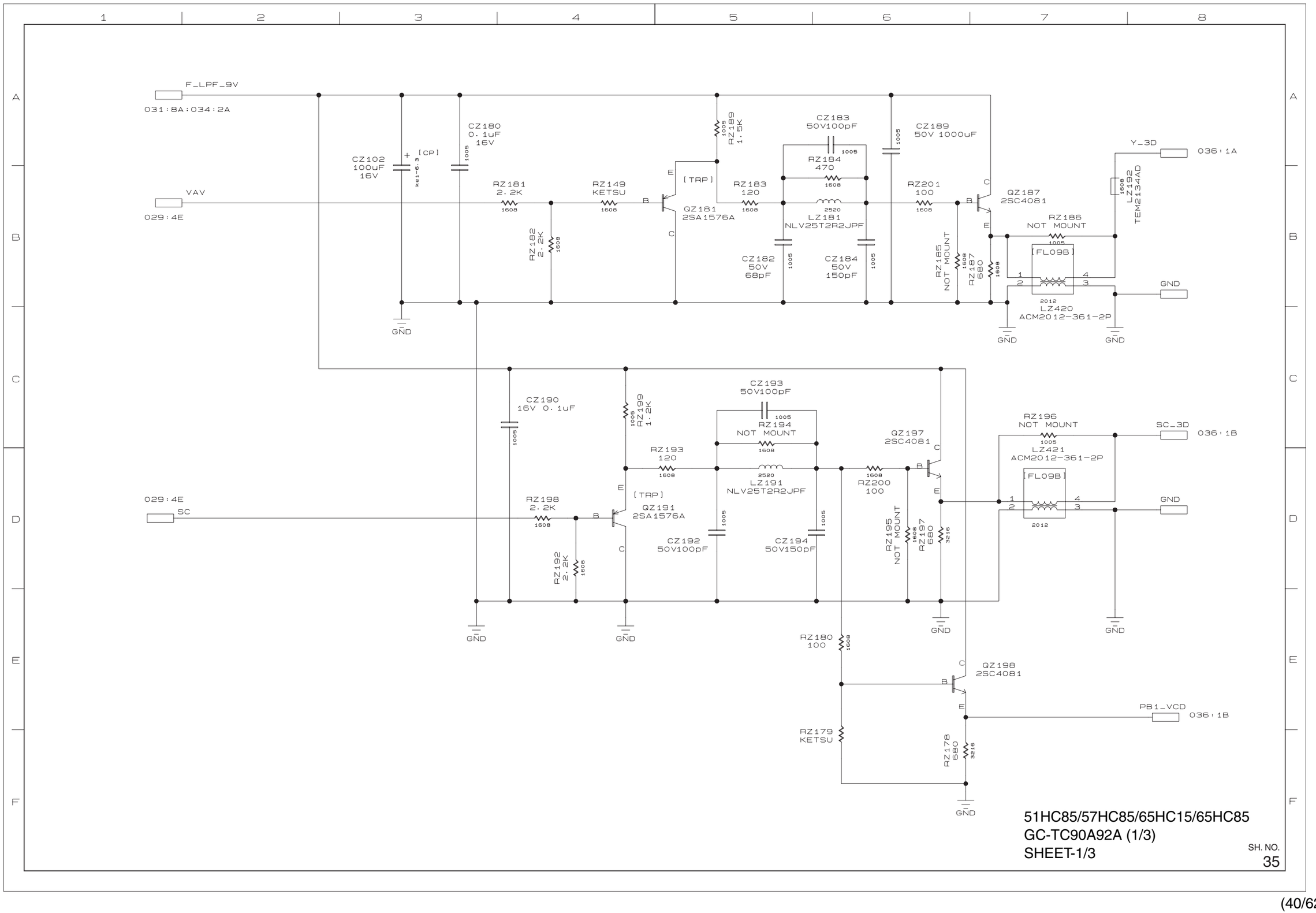
51HC85/57HC85/65HC15/65HC85
AD-CONVERTER (B)
SHEET-2/3

SH. NO.
33



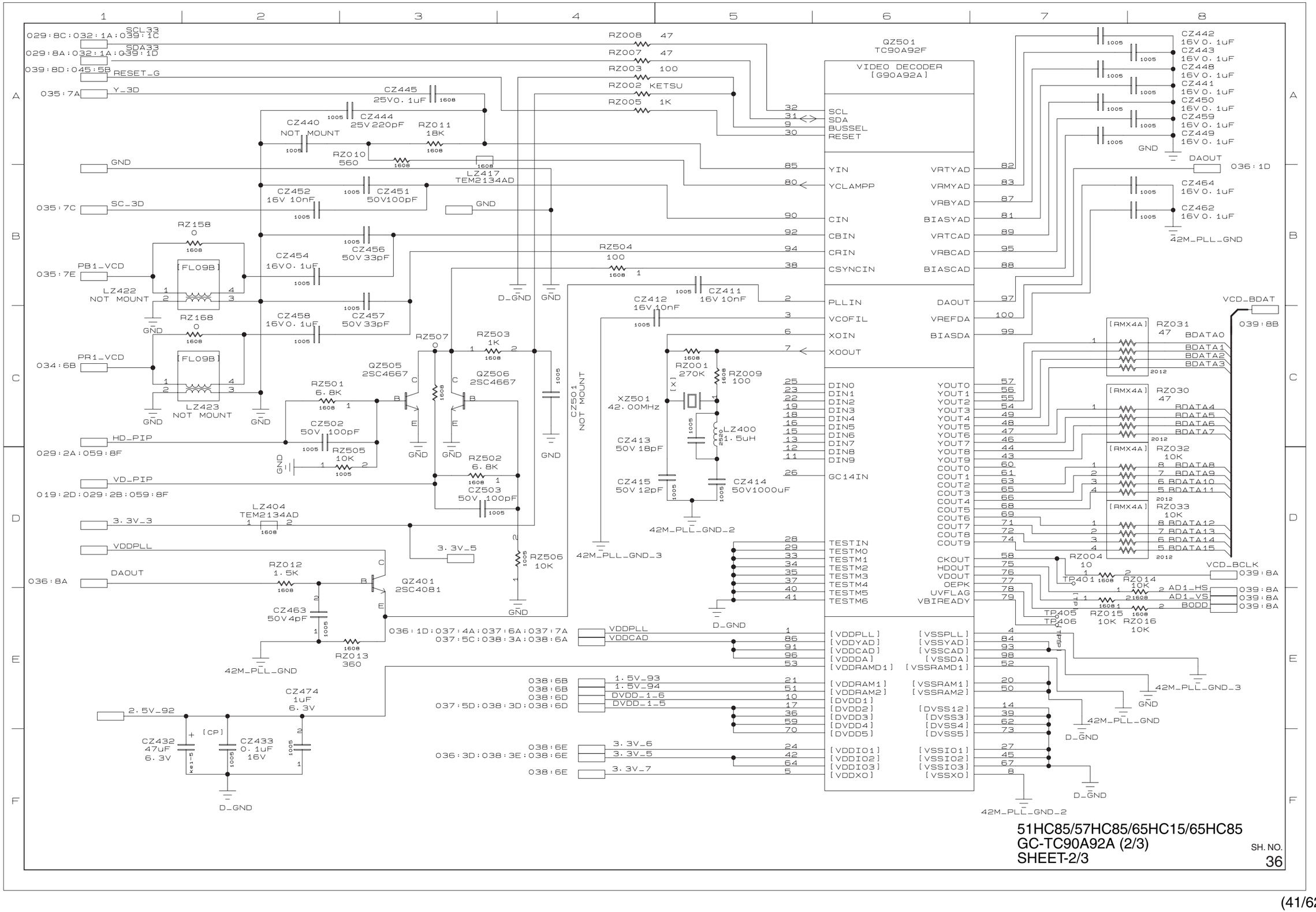
51HC85/57HC85/65HC15/65HC85
AD-CONVERTER (C)
SHEET-3/3

SH. NO.
34



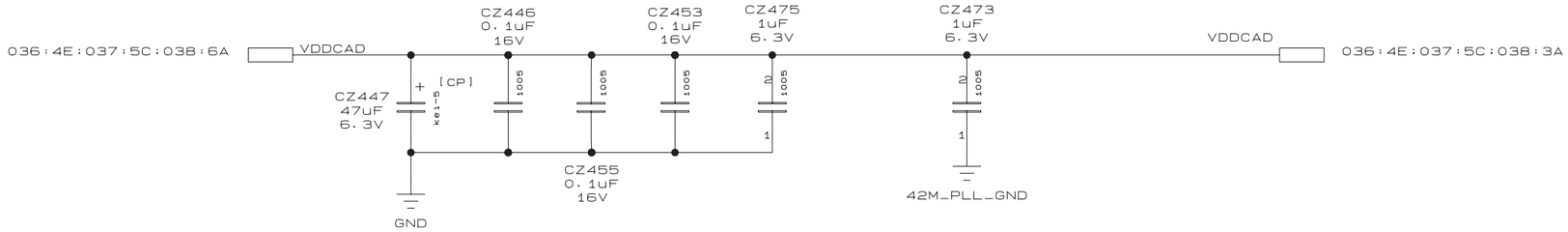
51HC85/57HC85/65HC15/65HC85
GC-TC90A92A (1/3)
SHEET-1/3

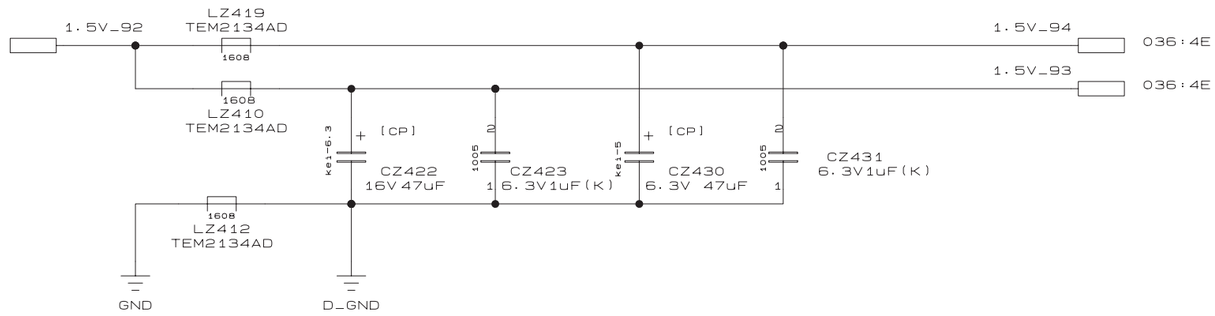
SH. NO.
35

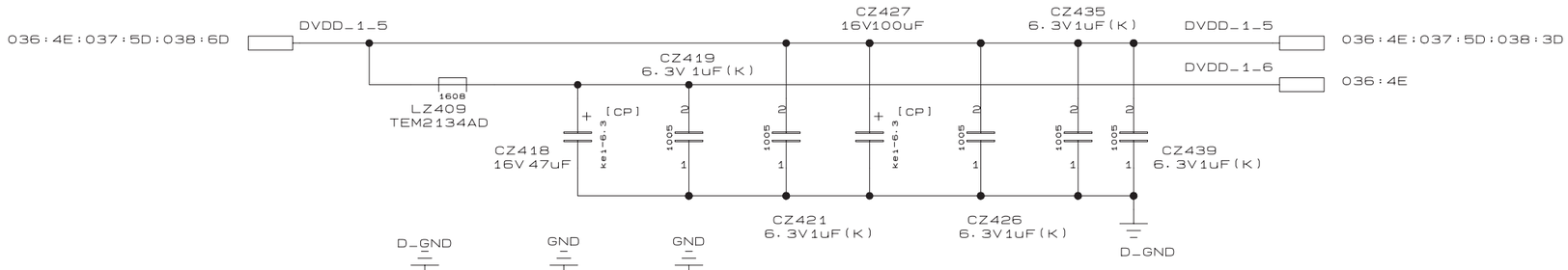


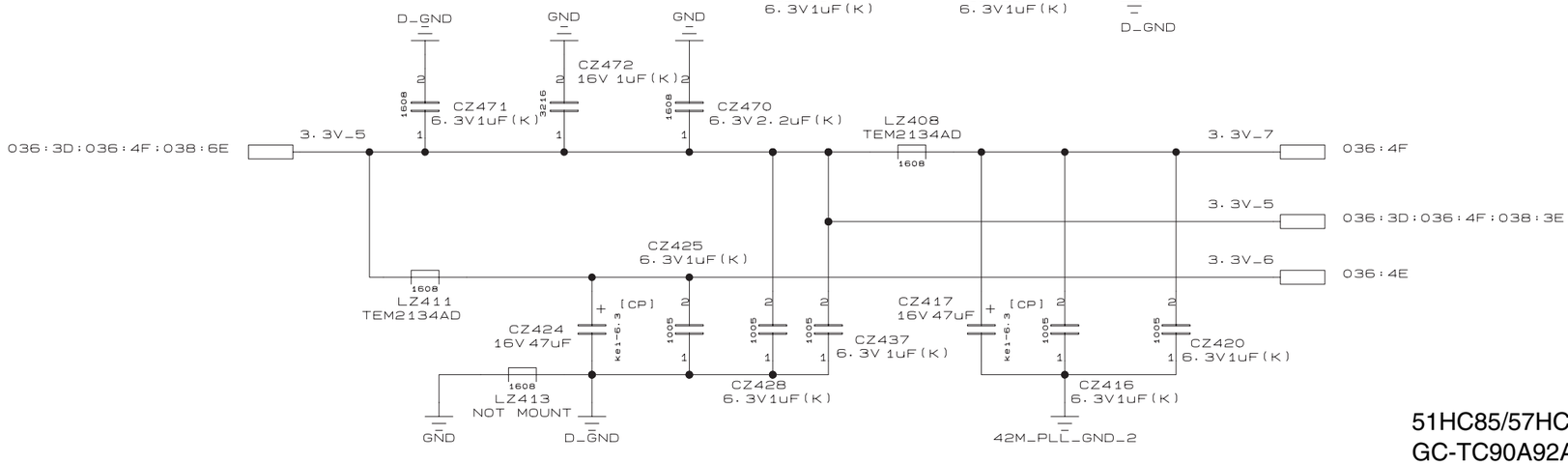
51HC85/57HC85/65HC15/65HC85
GC-TC90A92A (2/3)
SHEET-2/3

SH. NO.
36



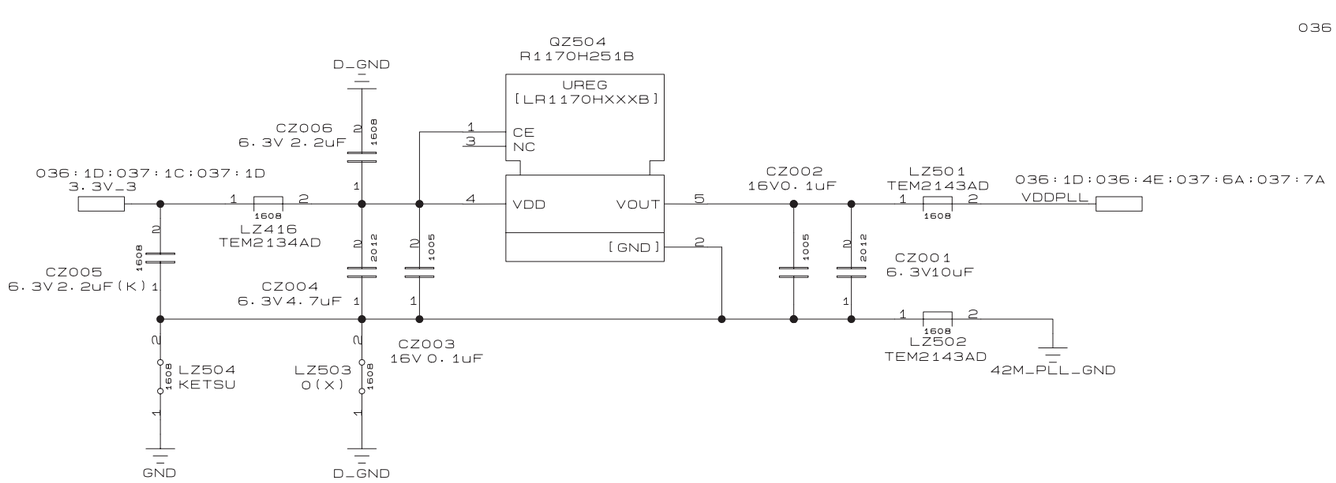


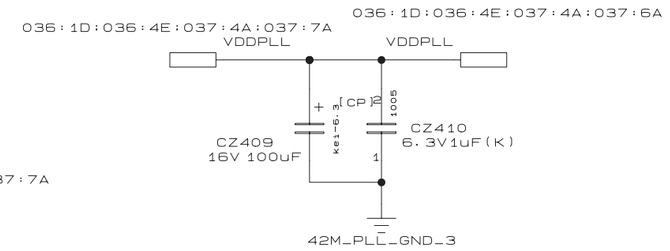


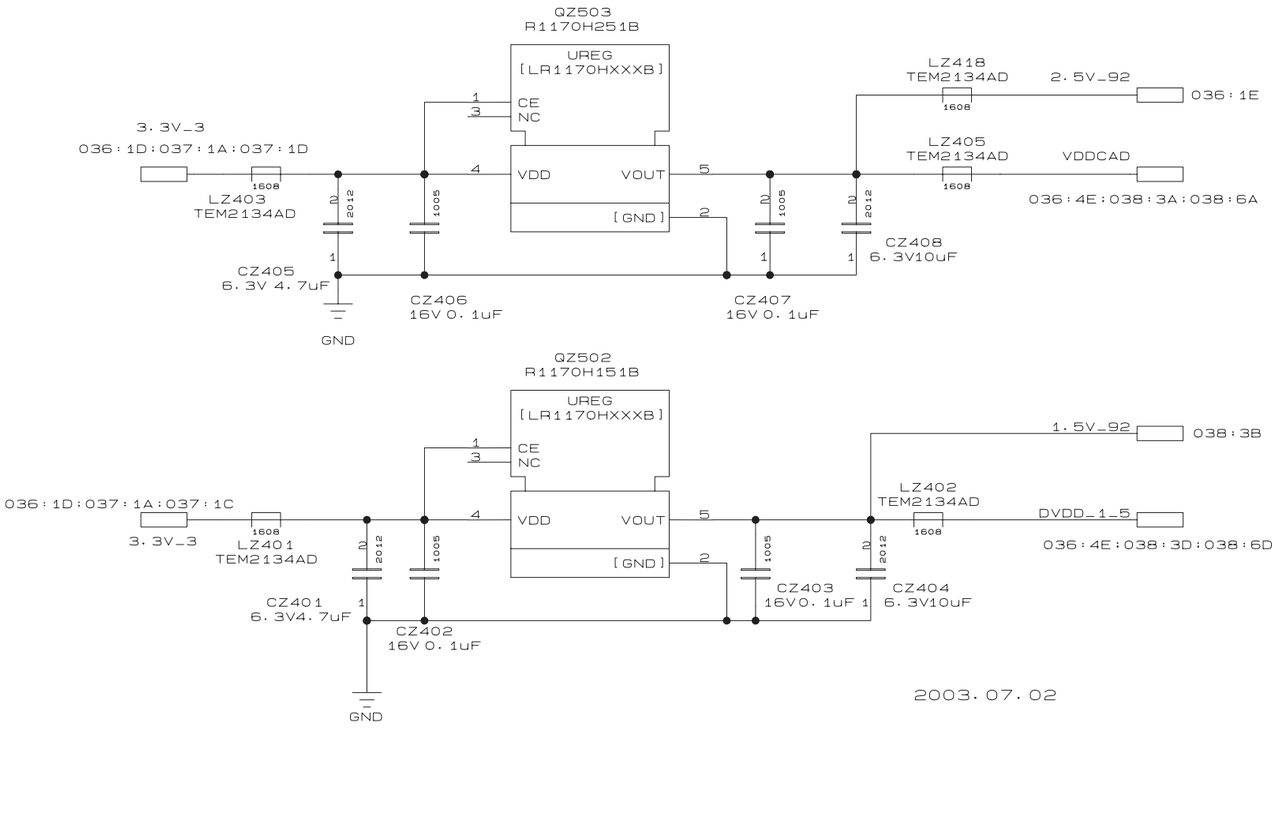


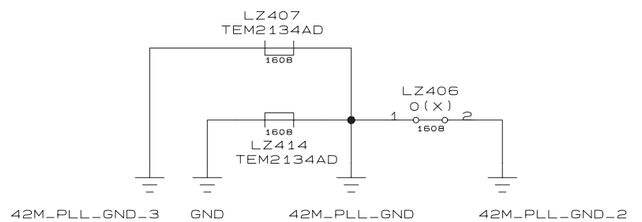
51HC85/57HC85/65HC15/65HC85
GC-TC90A92A (3/3)
SHEET-3/3

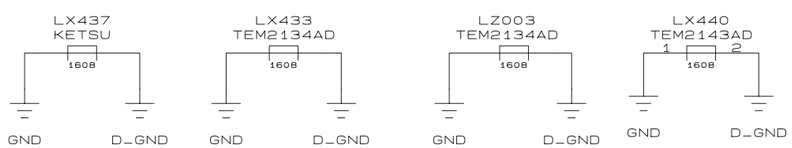
SH. NO.
38







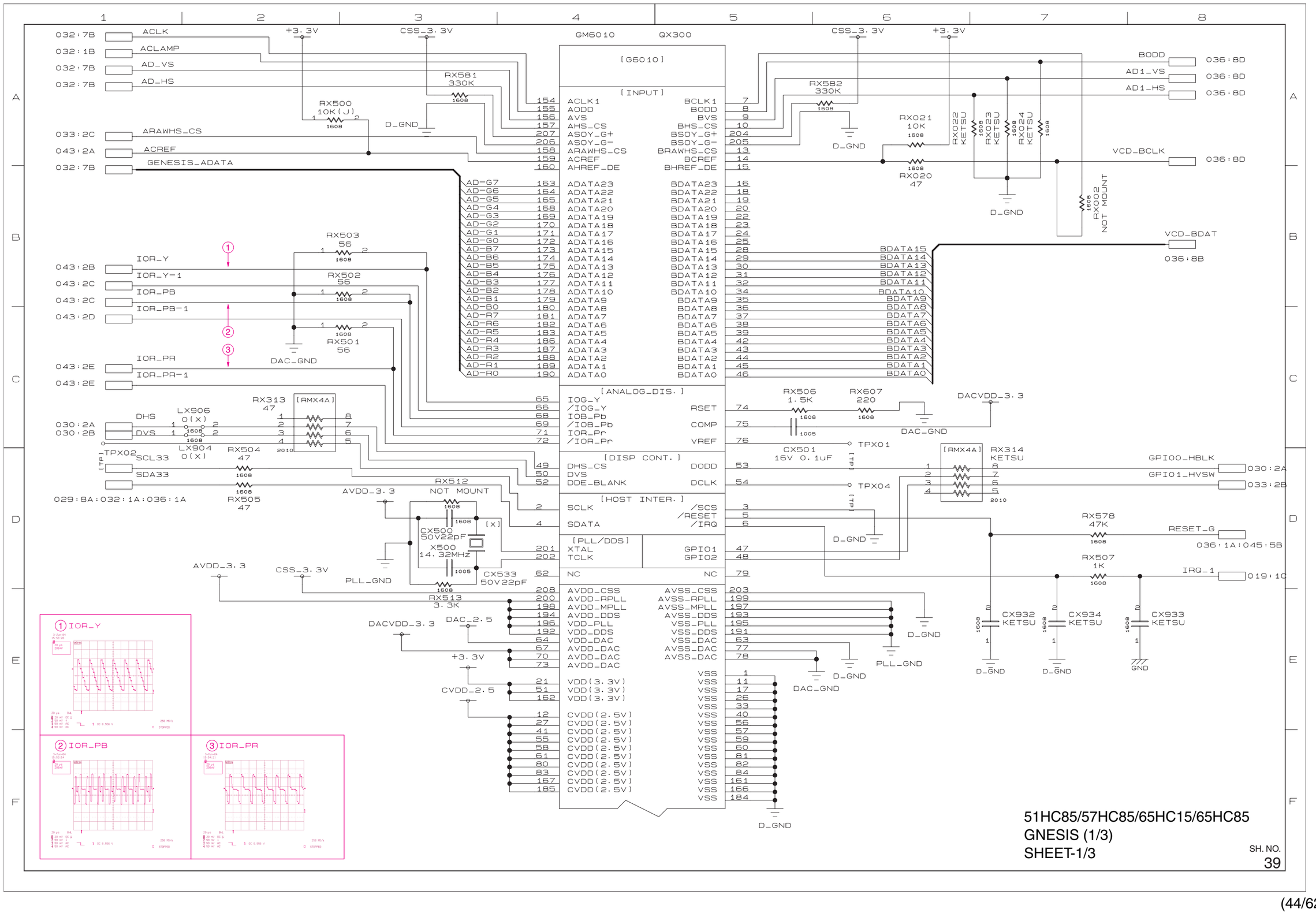




2003.07.02

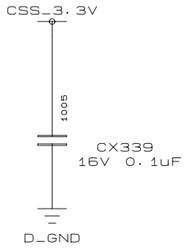
51HC85/57HC85/65HC15/65HC85
GC-REG

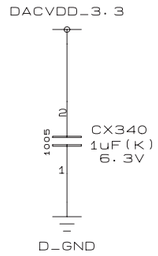
SH. NO.
37

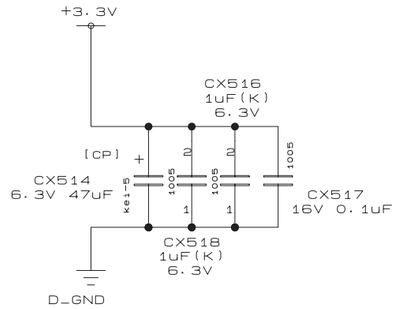

GM6010
QX300
[G6010]
[INPUT]
[ANALOG_DIS.]
[DISP CONT.]
[HOST INTER.]
[PLL/DDS]
ACLK
ACLAMP
AD_VS
AD_HS
ARAWHS_CS
ACREF
GENESIS_ADATA
+3.3V
CSS_3.3V
D_GND
RX581 330K
RX500 10K(J)
RX582 330K
RX021 10K
RX020 47
RX022 KETSU
RX023 KETSU
RX024 KETSU
RX002 NOT MOUNT
BODD
AD1_VS
AD1_HS
VCD_BCLK
VCD_BDAT
IOR_Y
IOR_Y-1
IOR_PB
IOR_PB-1
IOR_PR
IOR_PR-1
RX503 56
RX502 56
RX501 56
DAC_GND
RX313 47
[RMX4A]
LX906 0(X)
LX904 0(X)
DHS
DVS
TPX02
SCL33
SDA33
RX504 47
RX505 47
029:8A:032:1A:036:1A
RX512 NOT MOUNT
CX500 50V22pF
X500 14.32MHz
CX533 50V22pF
[X]
PLL_GND
AVDD_3.3
CSS_3.3V
RX513 3.3K
DACVDD_3.3
DAC_2.5
CVDD_2.5
RX506 1.5K
RX607 220
CX501 16V 0.1uF
TPX01
TPX04
RX314 KETSU
GPIO0_HBLK
GPIO1_HVSW
RX578 47K
RESET_G
RX507 1K
IRQ_1
CX932 KETSU
CX934 KETSU
CX933 KETSU
GND
1 IOR_Y
2 IOR_PB
3 IOR_PR
51HC85/57HC85/65HC15/65HC85
GNESIS (1/3)
SHEET-1/3
SH. NO.
39

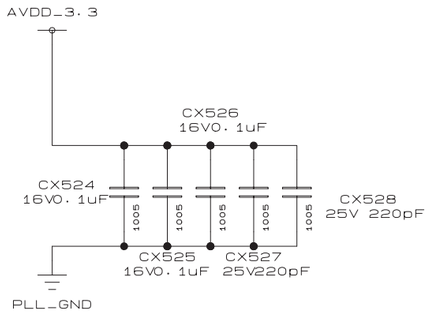
(44/62)

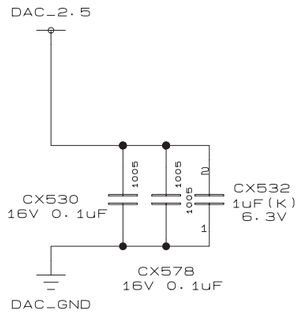
Capasitor for QX300

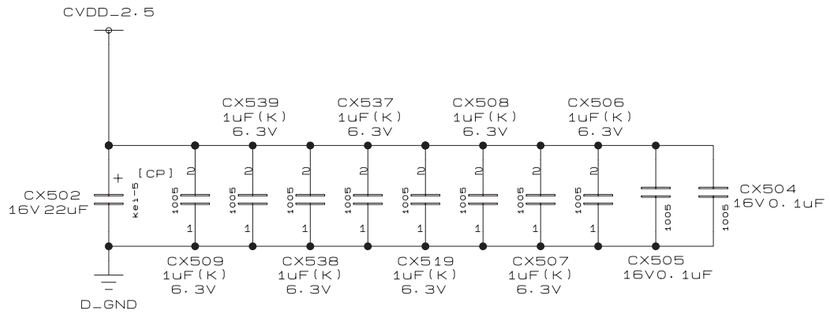




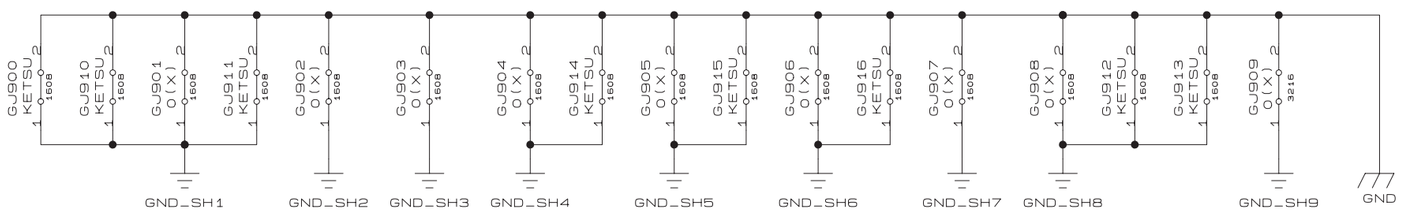






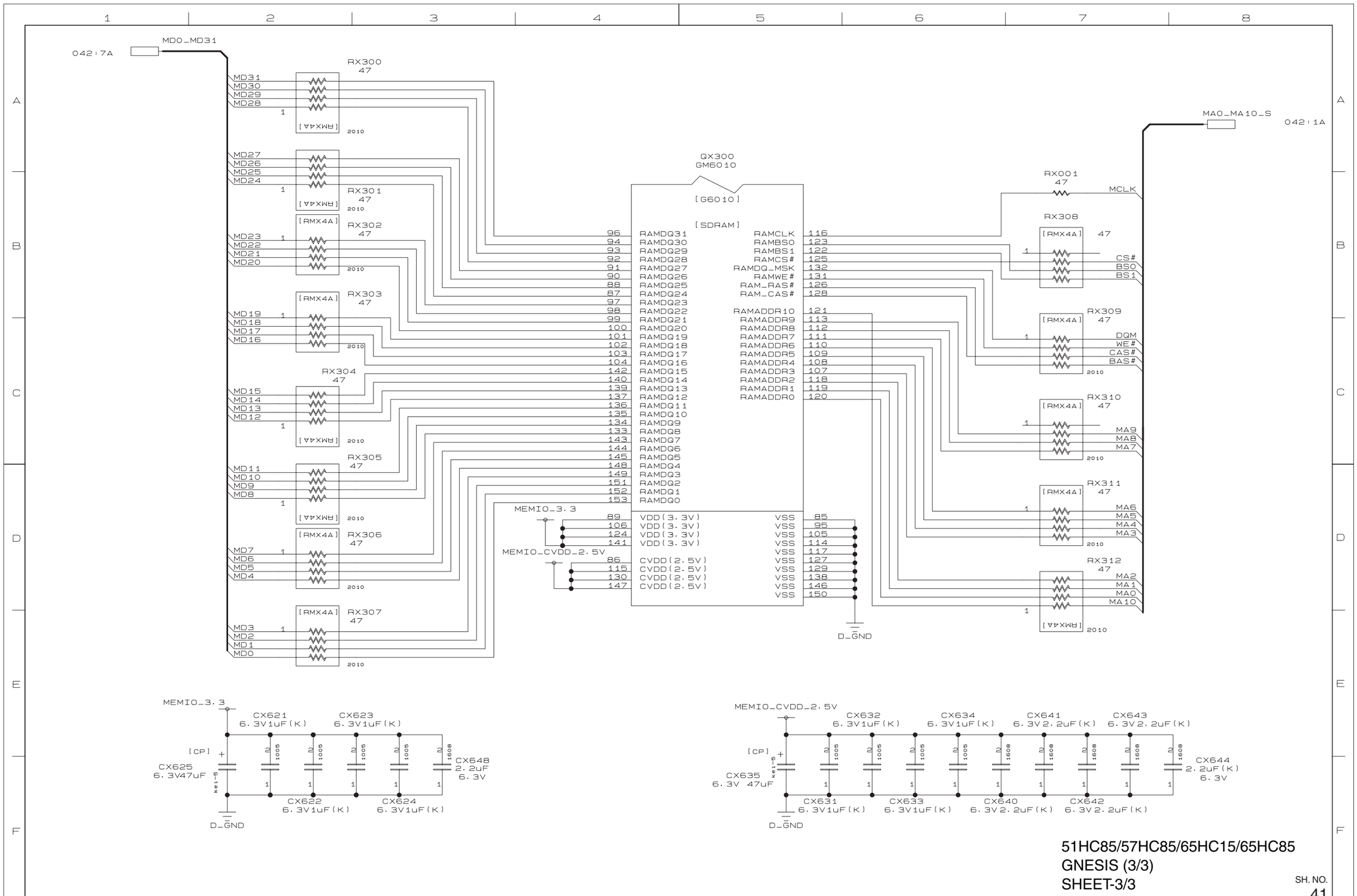


CHASSIS for GND JUMPER



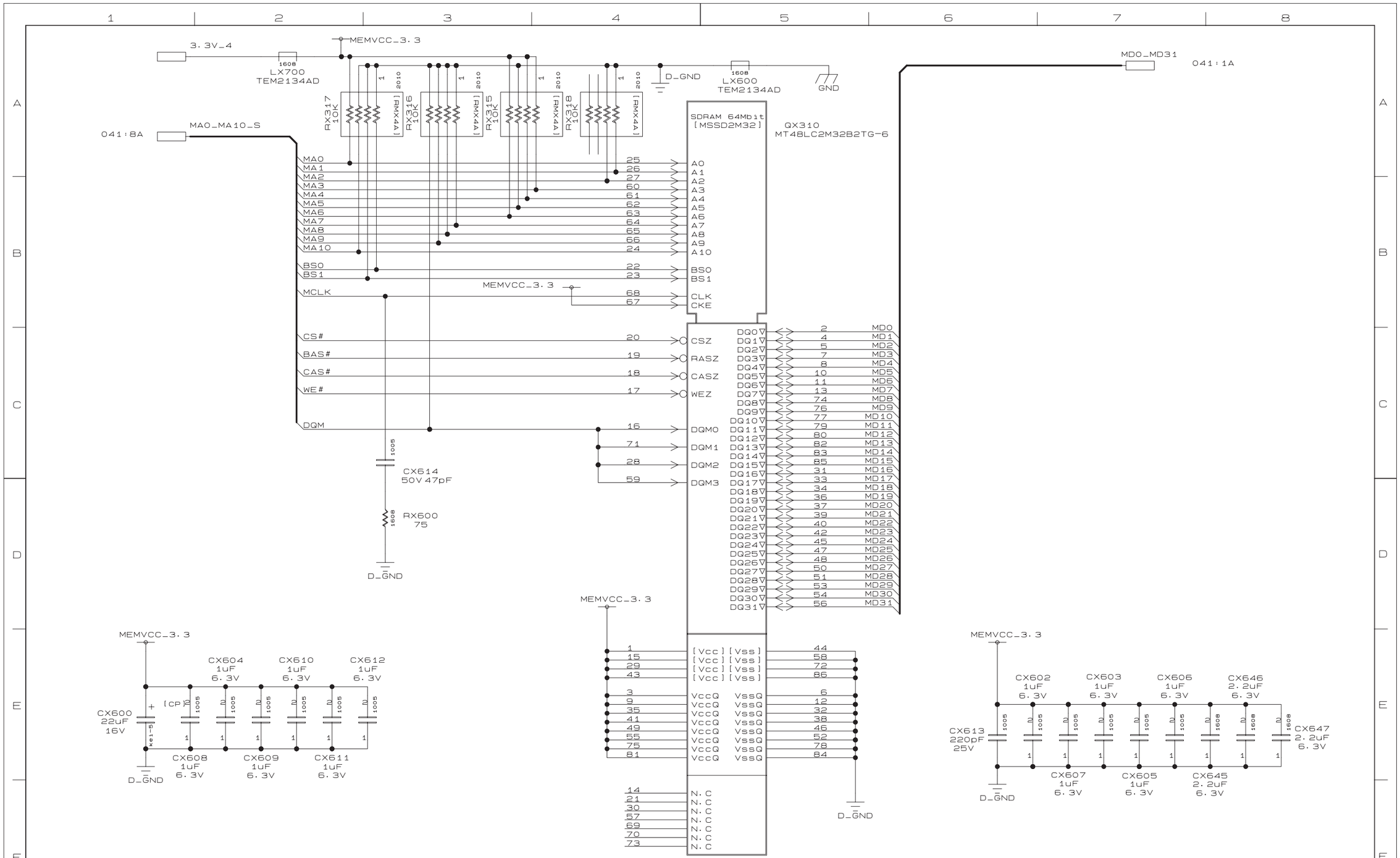
51HC85/57HC85/65HC15/65HC85
GNESIS (2/3)
SHEET-2/3

SH. NO.
40



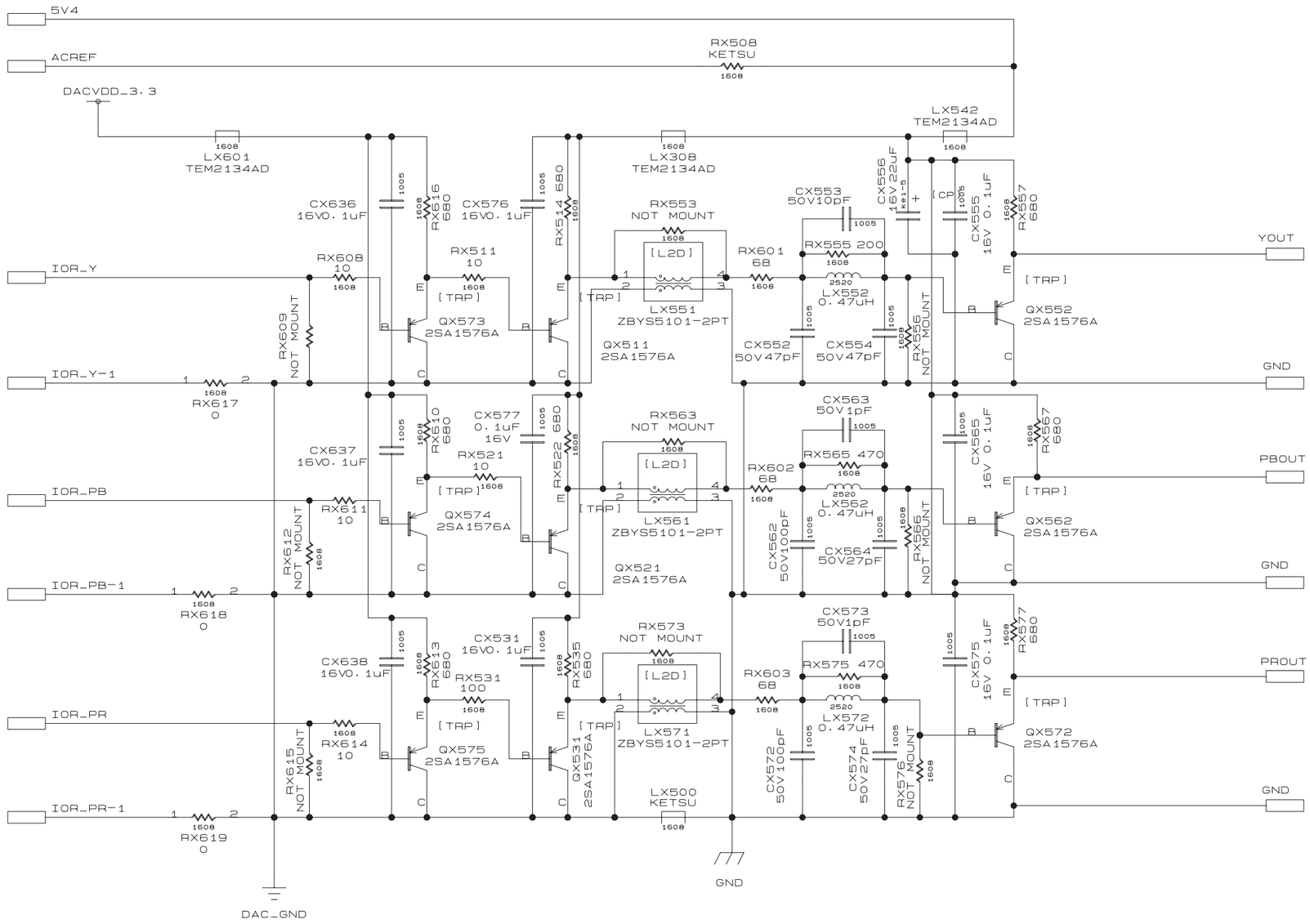
51HC85/57HC85/65HC15/65HC85
GNESIS (3/3)
SHEET-3/3

SH. NO.
41



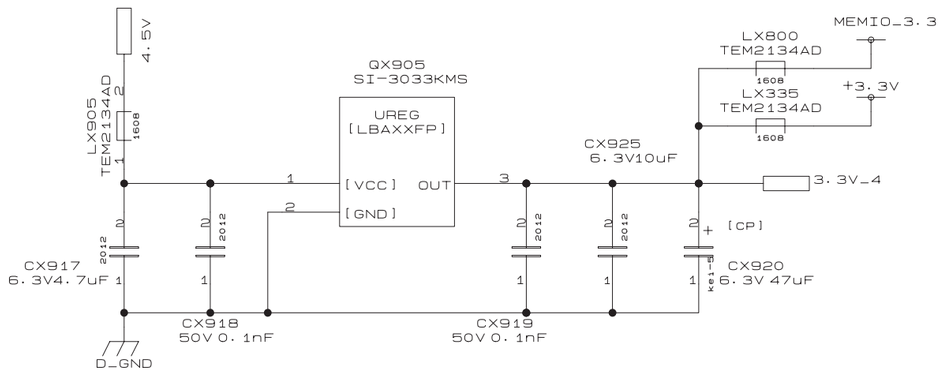
51HC85/57HC85/65HC15/65HC85
SDRAM

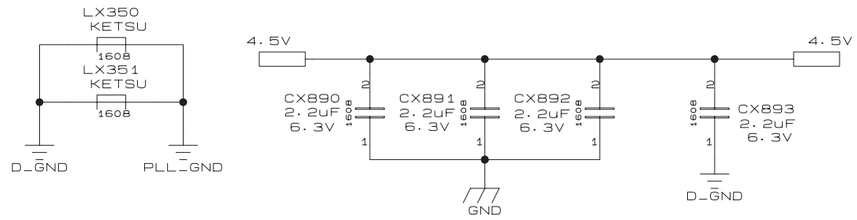
SH. NO.
42

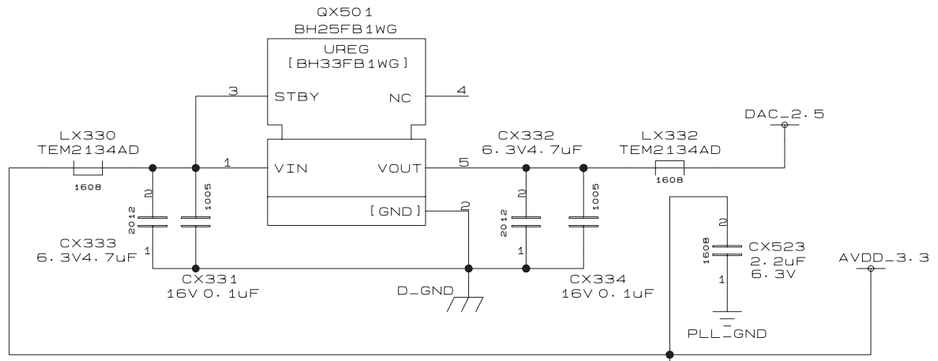


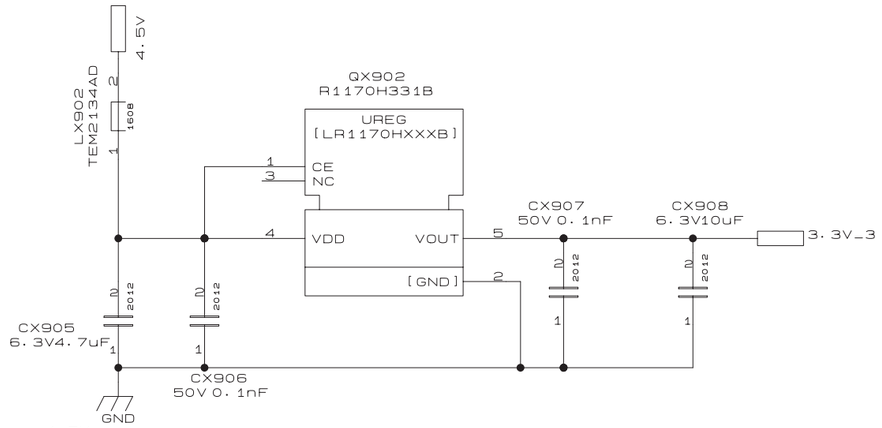
51HC85/57HC85/65HC15/65HC85
GNESIS OUT

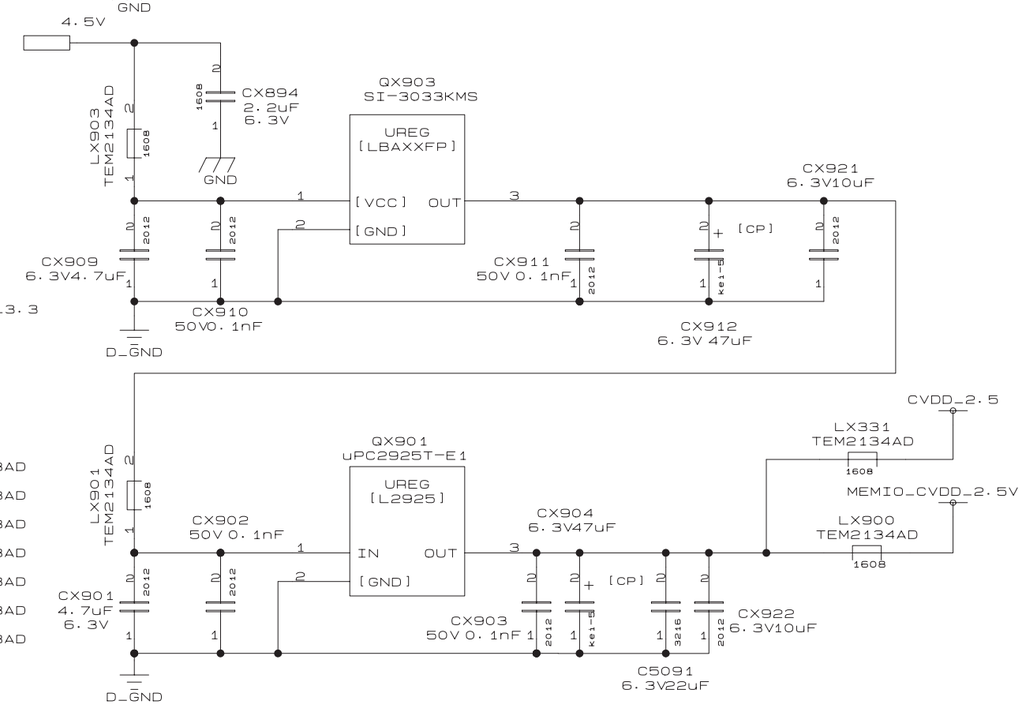
SH. NO.
43

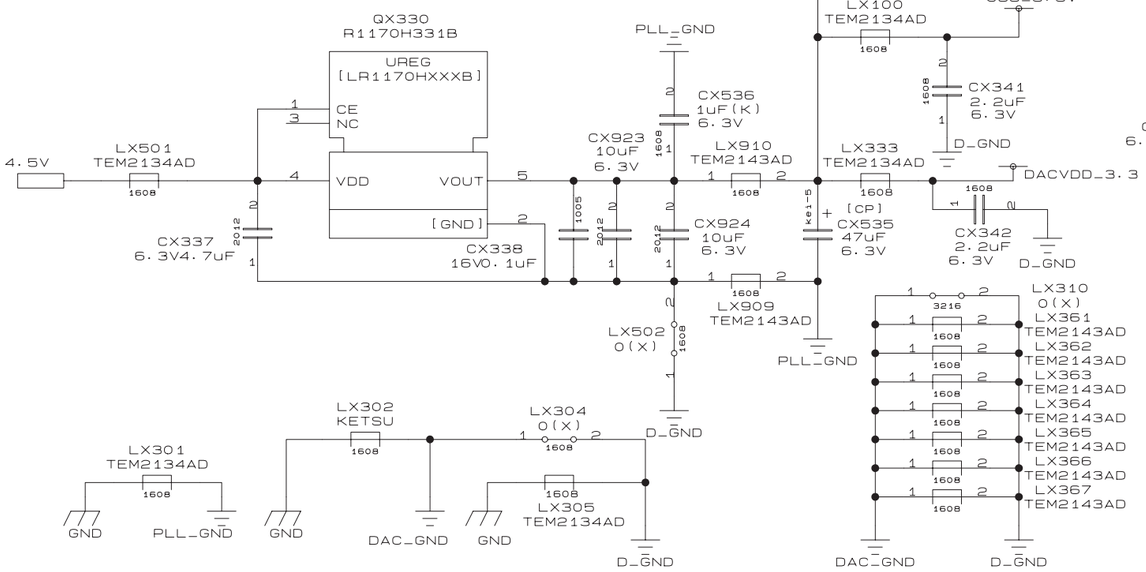






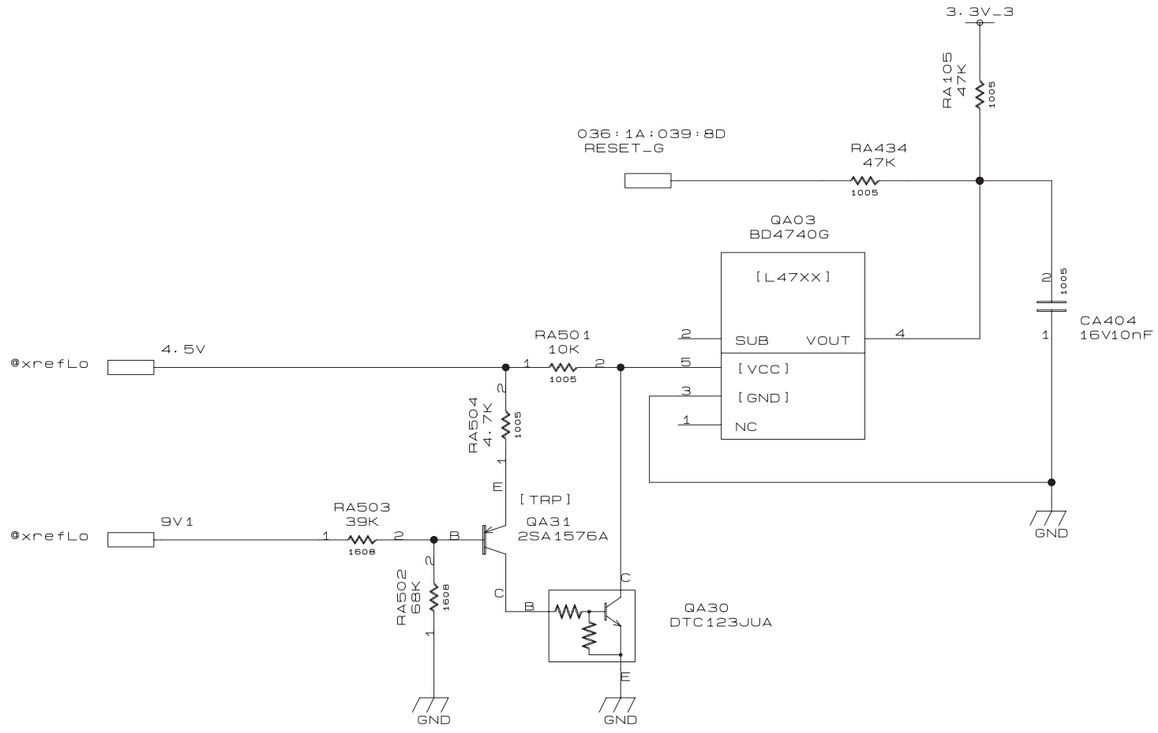






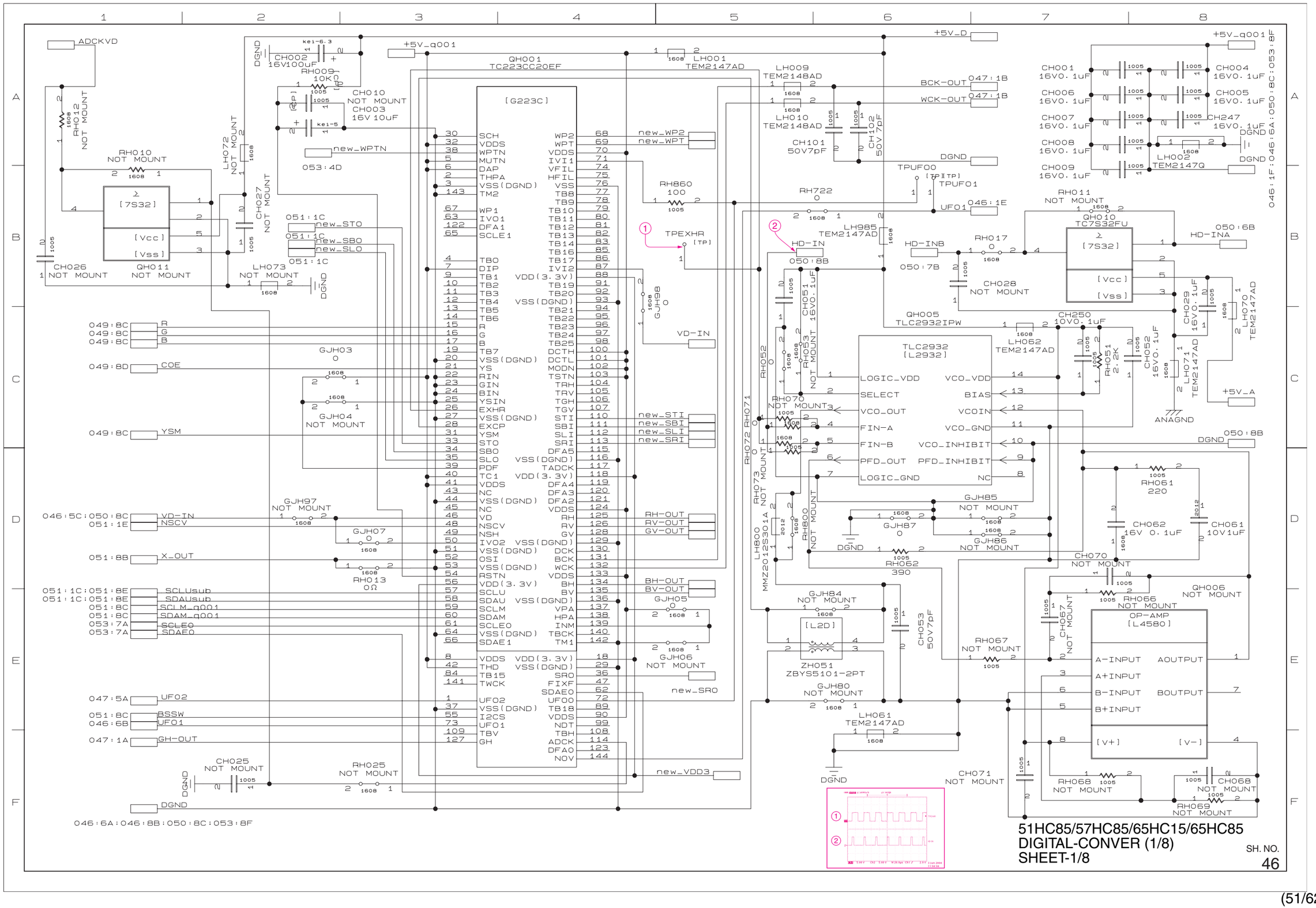
51HC85/57HC85/65HC15/65HC85
GNESIS REG

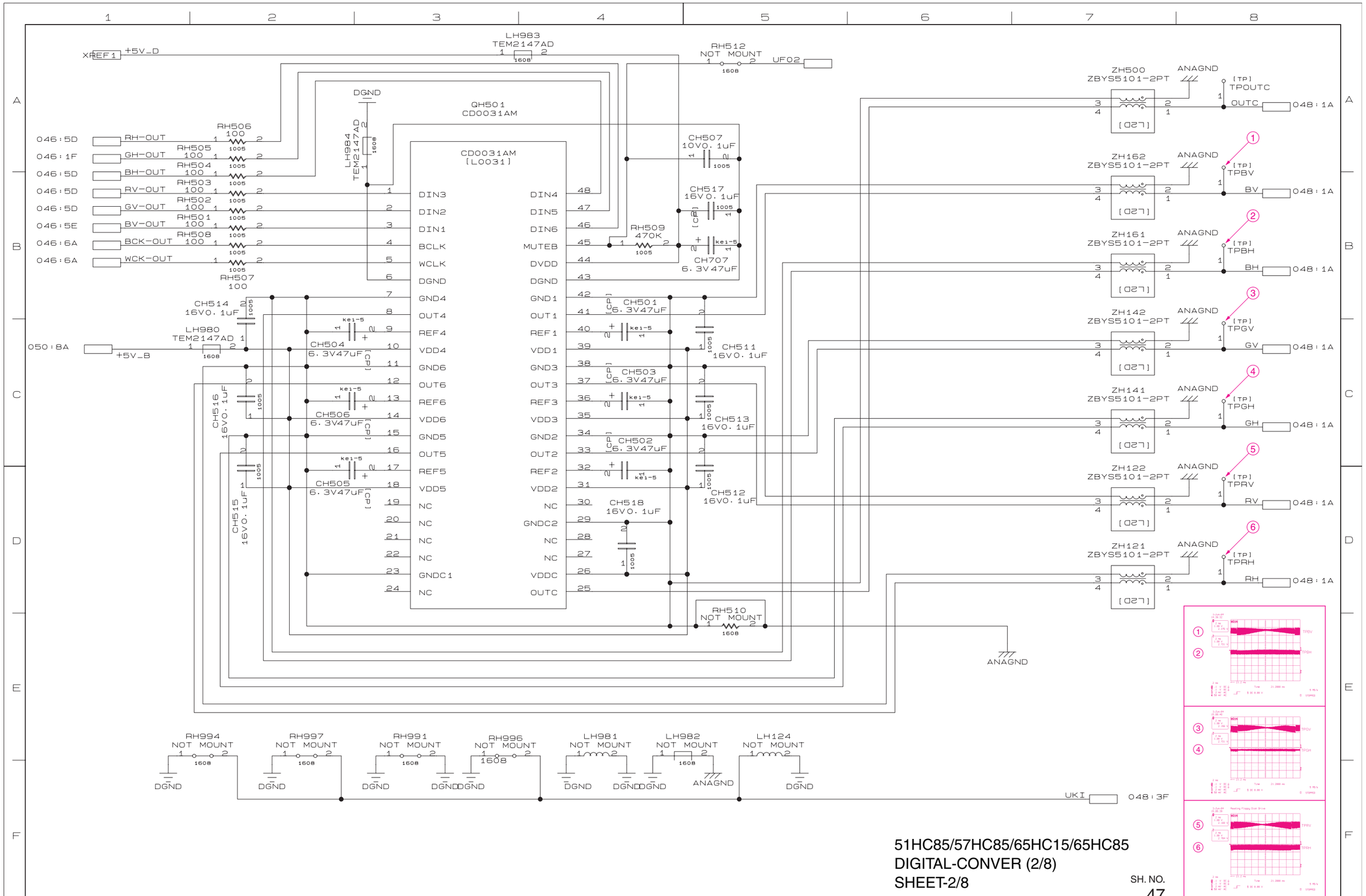
SH. NO.
44



51HC85/57HC85/65HC15/65HC85
CPU

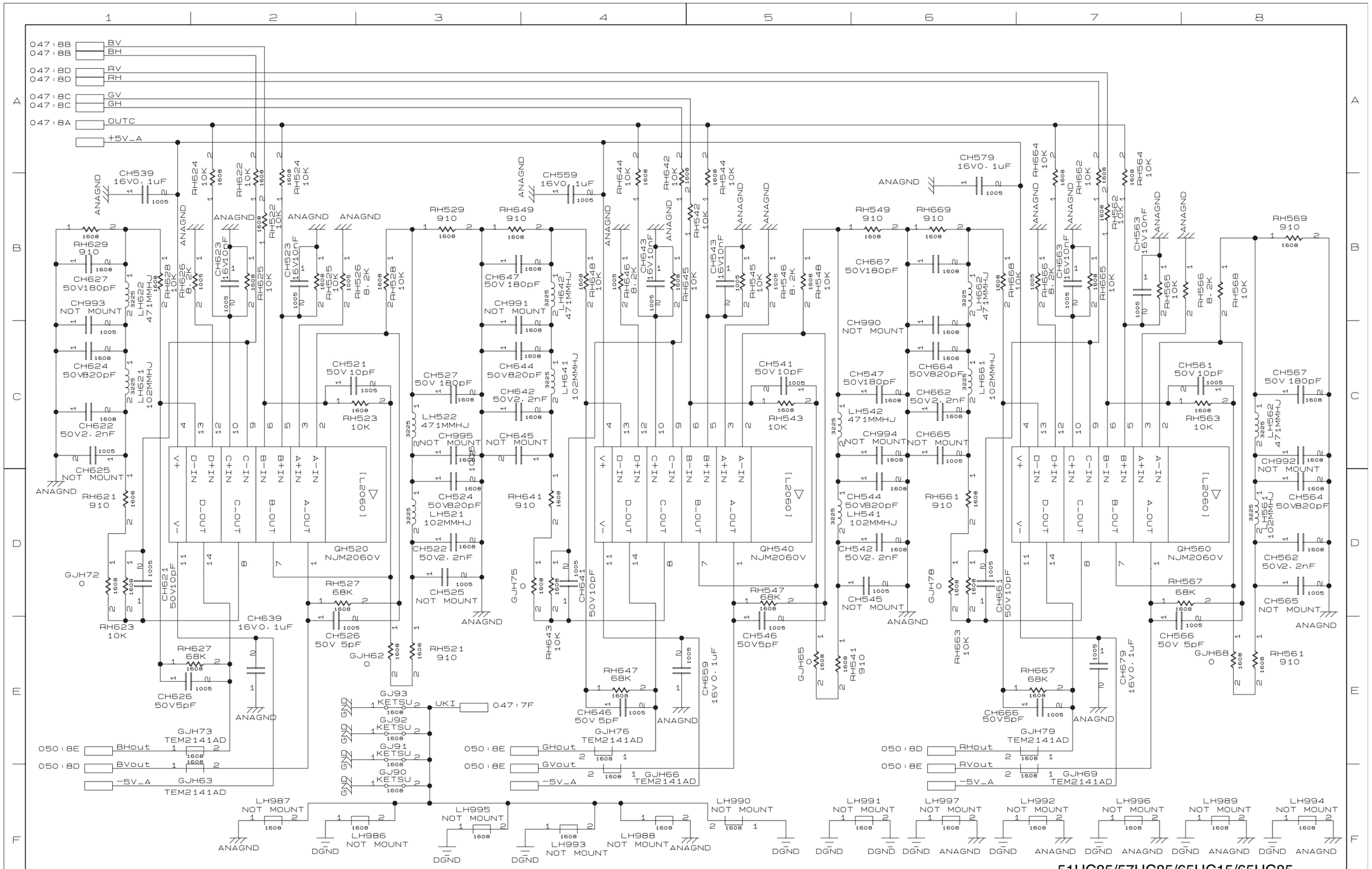
SH. NO.
45

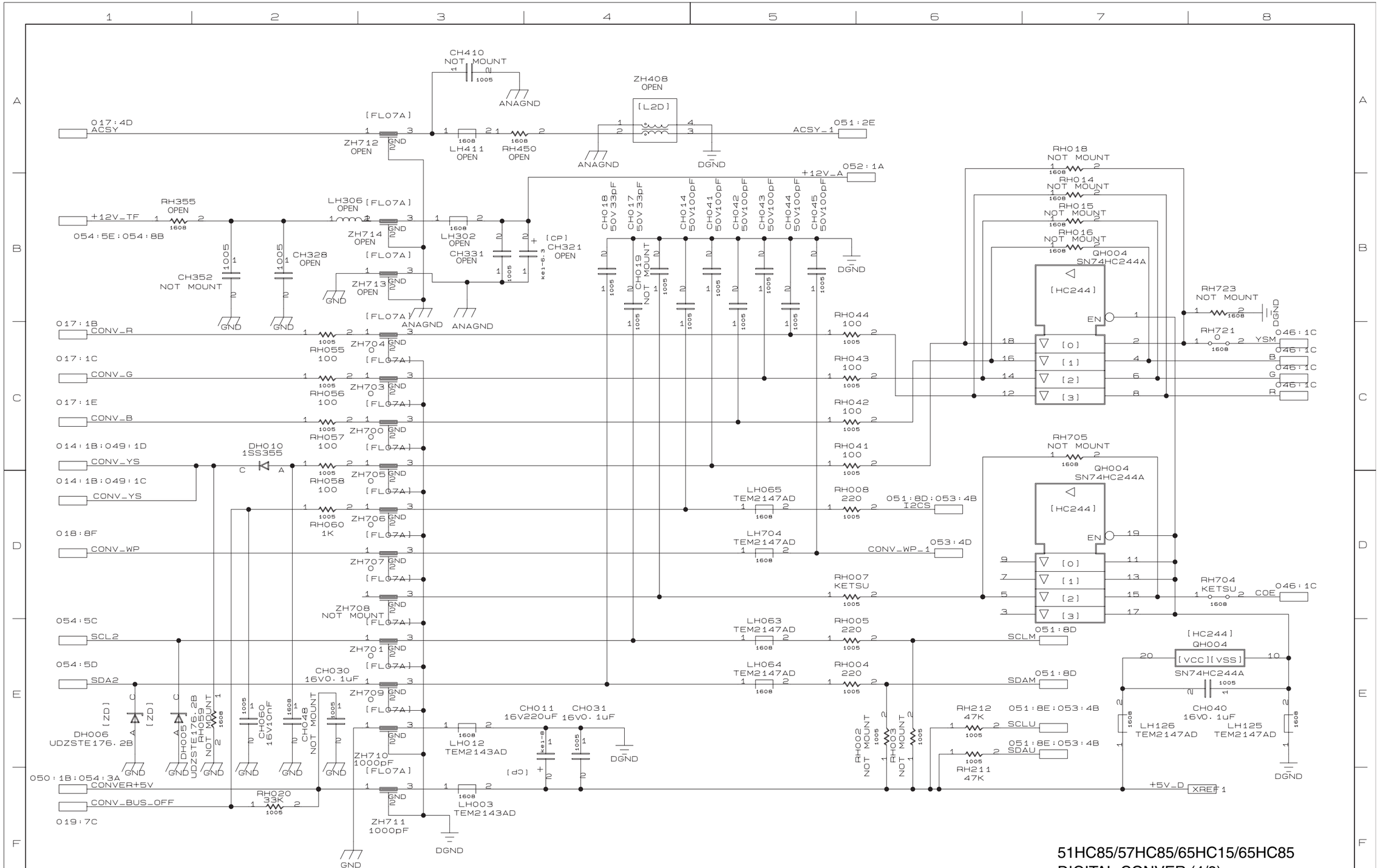

ADCKVD
RH012 NOT MOUNT
RH010 NOT MOUNT
[7S32]
[Vcc]
[Vss]
CH026 NOT MOUNT
QH011 NOT MOUNT
LH072 NOT MOUNT
CH027 NOT MOUNT
LH073 NOT MOUNT
DGND
CH002 16V100uF
RH009 10K0
CH010 NOT MOUNT
CH003 16V 10uF
new_WPTN
053:4D
051:1C new_STO
051:1C new_SBO
new_SLO
051:1C
049:8C R
049:8C G
049:8C B
GJH03 0
049:8D COE
GJH04 NOT MOUNT
049:8C YSM
+5V_q001
QH001 TC223CC20EF
[G223C]
SCH WP2 68
VDDS WPT 69
WPTN VDDS 70
MUTN IVI1 71
DAP VFIL 74
THPA HFIL 75
VSS(DGND) VSS 76
TM2 TB8 77
TB9 78
WP1 TB10 79
IVO1 TB11 80
DFA1 TB12 81
SCLE1 TB13 82
TB14 83
TB16 85
TBO TB17 86
DIP IVI2 87
TB1 VDD(3.3V) 88
TB2 TB19 91
TB3 TB20 92
TB4 VSS(DGND) 93
TB5 TB21 94
TB6 TB22 95
R TB23 96
G TB24 97
B TB25 98
TB7 DCTH 100
VSS(DGND) DCTL 101
YS MODN 102
RIN TSTN 103
GIN TRH 104
BIN TRV 105
YSIN TGH 106
EXHR TGV 107
VSS(DGND) STI 110
EXCP SBI 111
YSM SLI 112
STO SRI 113
SBO DFA5 115
SLO VSS(DGND) 116
PDF TADCK 117
TC1 VDD(3.3V) 118
VDDS DFA4 119
NC DFA3 120
VSS(DGND) DFA2 121
NC VDDS 124
VD RH 125
NSCV RV 126
NSH GV 128
IVO2 VSS(DGND) 129
VSS(DGND) DCK 130
OSI BCK 131
VSS(DGND) WCK 132
RSTN VDDS 133
VDD(3.3V) BH 134
SCLU BV 135
SDAU VSS(DGND) 136
SCLM VPA 137
SDAM HPA 138
SCLEO INM 139
VSS(DGND) TBCK 140
SDAE1 TM1 142
VDDS VDD(3.3V) 18
THD VSS(DGND) 29
TB15 SRO 36
TWCK FIXF 47
SDAEO 62
UF02 UF00 72
VSS(DGND) TB18 89
I2CS VDDS 90
UF01 NDT 99
TBV TBH 108
GH ADCK 114
DFAO 123
NOV 144
LH001 TEM2147AD
new_WP2
new_WPT
RH860 100
TPEXHR [TP]
GJH98 0
VD-IN
new_STI
new_SBI
new_SLI
new_SRI
RH-OUT
RV-OUT
GV-OUT
BH-OUT
BV-OUT
GJH05 0
GJH06 NOT MOUNT
new_SRO
new_VDD3
GJH97 NOT MOUNT
046:5C:050:8C VD-IN
051:1E NSCV
GJH07 0
051:8B X_OUT
RH013 0Ω
051:1C:051:8E SCLUsub
051:1C:051:8E SDAUsub
051:8C SCLM_g001
051:8C SDAM_g001
053:7A SCLEO
053:7A SDAEO
047:5A UF02
051:8C BSSW
046:6B UF01
047:1A GH-OUT
CH025 NOT MOUNT
RH025 NOT MOUNT
DGND
046:6A:046:8B:050:8C:053:8F
LH009 TEM2148AD
LH010 TEM2148AD
CH101 50V7pF
CH102 50V 7pF
+5V_D
BCK-OUT 047:1B
WCK-OUT 047:1B
TPUF00 [TP]
TPUF01 [TP]
RH722 0
UF01 046:1E
LH985 TEM2147AD
HD-IN 050:8B
HD-INB 050:7B
RH017 0
CH028 NOT MOUNT
QH005 TLC2932IPW
TLC2932 [L2932]
LOGIC_VDD
SELECT
VCO_OUT
FIN-A
FIN-B
PFD_OUT
LOGIC_GND
VCO_VDD
BIAS
VCOIN
VCO_GND
VCO_INHIBIT
PFD_INHIBIT
NC
LH062 TEM2147AD
CH250 10V0.1uF
RH051 2.2K
CH052 16V0.1uF
RH052 0
CH051 16V0.1uF
RH053 NOT MOUNT
RH070 NOT MOUNT
RH072 0
RH071 NOT MOUNT
RH073 NOT MOUNT
LH800 MMZ2012S301A
RH800 NOT MOUNT
GJH84 NOT MOUNT
[L2D]
ZH051 ZBYS5101-2PT
GJH80 NOT MOUNT
LH061 TEM2147AD
CH053 50V7pF
GJH85 NOT MOUNT
GJH87 0
GJH86 NOT MOUNT
RH062 390
RH067 NOT MOUNT
CH071 NOT MOUNT
CH070 NOT MOUNT
CH067 NOT MOUNT
QH006 NOT MOUNT
RH066 NOT MOUNT
OP-AMP [L4580]
A-INPUT
A+INPUT
B-INPUT
B+INPUT
AOUTPUT
BOUTPUT
[V+]
[V-]
RH068 NOT MOUNT
CH068 NOT MOUNT
RH069 NOT MOUNT
RH061 220
CH062 16V 0.1uF
CH061 10V1uF
CH001 16V0.1uF
CH004 16V0.1uF
CH006 16V0.1uF
CH005 16V0.1uF
CH007 16V0.1uF
CH247 16V0.1uF
CH008 16V0.1uF
CH009 16V0.1uF
LH002 TEM2147Q
+5V_q001
DGND
RH011 NOT MOUNT
QH010 TC7S32FU
[7S32]
[Vcc]
[Vss]
050:6B HD-INA
CH029 16V0.1uF
LH070 TEM2147AD
LH071 TEM2147AD
+5V_A
ANAGND
050:8B
DGND
046:1F:046:6A:050:8C:053:8F
51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (1/8)
SHEET-1/8
SH. NO.
46



51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (2/8)
SHEET-2/8

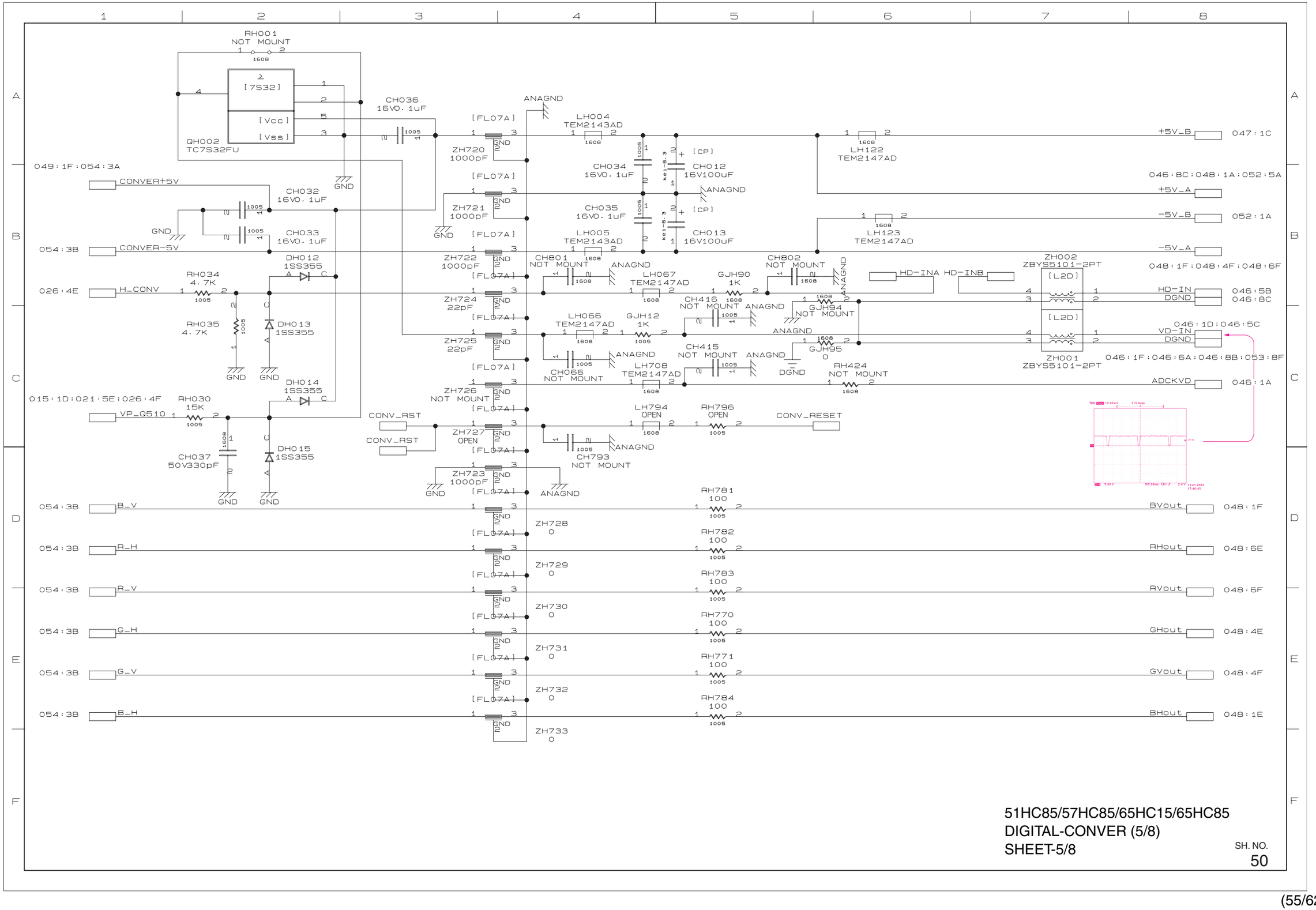
SH. NO.
47


047:8B BV
047:8B BH
047:8D RV
047:8D RH
047:8C GV
047:8C GH
047:8A OUTC
+5V_A
CH539 16V0.1uF
CH559 16V0.1uF
CH579 16V0.1uF
RH529 910
RH649 910
RH549 910
RH669 910
RH569 910
CH627 50V180pF
CH993 NOT MOUNT
CH624 50V820pF
CH622 50V2.2nF
CH625 NOT MOUNT
CH647 50V180pF
CH991 NOT MOUNT
CH644 50V820pF
CH642 50V2.2nF
CH645 NOT MOUNT
CH667 50V180pF
CH990 NOT MOUNT
CH664 50V820pF
CH662 50V2.2nF
CH665 NOT MOUNT
CH567 50V180pF
CH992 NOT MOUNT
CH564 50V820pF
CH562 50V2.2nF
CH565 NOT MOUNT
LH621 102MMHJ
LH641 102MMHJ
LH661 102MMHJ
LH561 102MMHJ
LH522 471MMHJ
LH642 471MMHJ
LH662 471MMHJ
LH562 471MMHJ
LH542 471MMHJ
CH995 NOT MOUNT
CH524 50V820pF
LH521 102MMHJ
CH522 50V2.2nF
CH525 NOT MOUNT
CH994 NOT MOUNT
CH544 50V820pF
LH541 102MMHJ
CH542 50V2.2nF
CH545 NOT MOUNT
RH621 910
RH641 910
RH661 910
RH561 910
RH623 10K
RH643 10K
RH663 10K
RH521 910
RH541 910
RH527 68K
RH547 68K
RH667 68K
RH567 68K
CH526 50V 5pF
CH546 50V5pF
CH666 50V5PF
CH566 50V 5pF
CH639 16V0.1uF
CH659 16V0.1uF
CH679 16V0.1uF
CH626 50V5pF
CH646 50V 5pF
GJH72 0
GJH75 0
GJH78 0
GJH62 0
GJH65 0
GJH68 0
RH627 68K
RH647 68K
GJ93 KETSU
GJ92 KETSU
GJ91 KETSU
GJ90 KETSU
UKI
047:7F
GJH73 TEM2141AD
GJH76 TEM2141AD
GJH79 TEM2141AD
GJH63 TEM2141AD
GJH66 TEM2141AD
GJH69 TEM2141AD
050:8E BHout
050:8D BVout
050:8E GHout
050:8E GVout
050:8D RHout
050:8E RVout
-5V_A
QH520 NJM2060V
QH540 NJM2060V
QH560 NJM2060V
LH987 NOT MOUNT
LH986 NOT MOUNT
LH995 NOT MOUNT
LH993 NOT MOUNT
LH990 NOT MOUNT
LH988 NOT MOUNT
LH991 NOT MOUNT
LH997 NOT MOUNT
LH992 NOT MOUNT
LH996 NOT MOUNT
LH989 NOT MOUNT
LH994 NOT MOUNT
ANAGND
DGND
51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (3/8)
SHEET-3/8
SH. NO.
48



51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (4/8)
SHEET-4/8

SH. NO.
49



51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (5/8)
SHEET-5/8

SH. NO.
50

OPEN

CH401 50V 22pF
CH402 50V 22pF
RH429 1M
XH401 8.00MHz
QH401 TMPA8700CHF
[U8700]

OSC1 TEST XIN PWM0 XOUT RESET N.C. N.C.
PWM3 PWM4 PWM5 PWM6 PWM7 PWM8 PWM9/SCL1 SO1/SDA1 SCK1/AIN0 AIN1 AIN2 AIN3 AIN4/Y/BLIN AIN5/BIN GIN/CSOUT RIN P57 VDD
R G B Y/BL HD VD OSC2 INT5/STOP INT3/RXIN INT4/TC3 SCLO SDAO VIN1/CSIN TC4/VINO PWM1 PWM2 VVSS VSS

RH440 100 new_STO
RH441 100 new_SBO
RH442 100 new_SLO
RH443 100 new_SRO
046:2B 046:2B 046:2B 046:5E

052:8A TOP
052:7A BOTTOM
052:8D LEFT
052:8D RIGHT

RH401 100
RH402 100
046:1E:051:8E SCLUsub
046:1E:051:8E SDAUsub
RH413 10K
RH412 10K

+5V_D
LH405 TEM2147AD
LH401 10MMHJ
CH409 16V 10nF [ZD]
CH408 16V 10uF
CH407 16V 10nF
DH401 UDZSTE175.6B

RH422 1K
ACSY_1 049:5A
RH427 2.2K
RH420 3.3K
046:1D NSCV
[TRP]
QH406 2SA1576A
RH428 4.7K
RH421 680
DGND

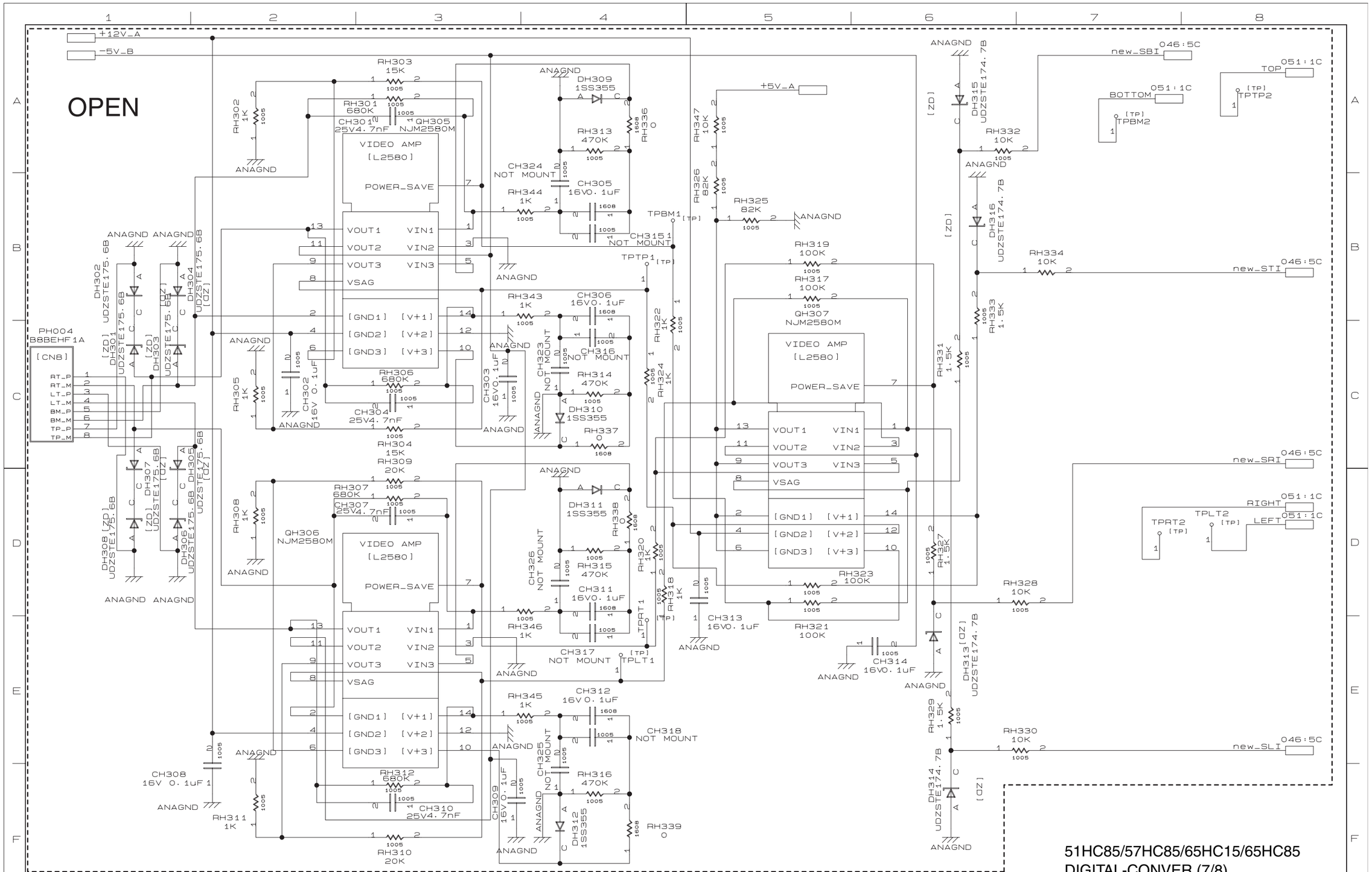
LH412 0 1608
LH413 0 1608
RH404 100
LH404 TEM2147AD
DGND

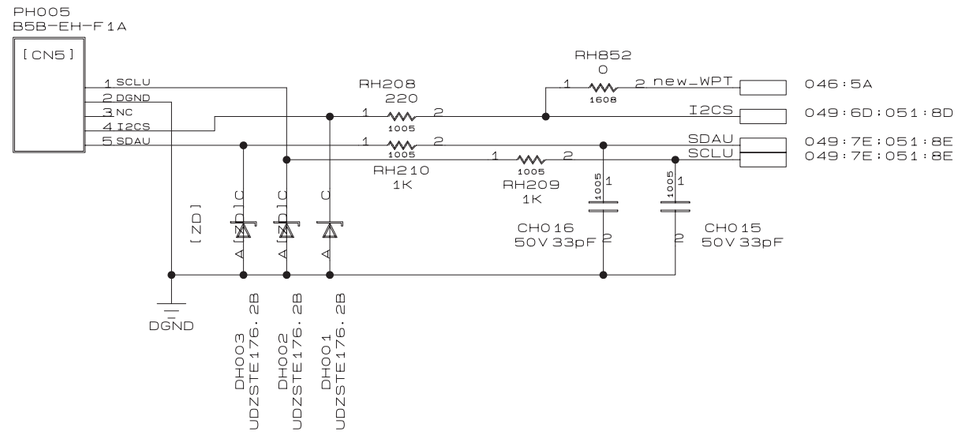
RH430 4.7K
RH433 100
RH425 NOT MOUNT
RH434 100
RH435 NOT MOUNT
[7S32]
[Vcc]
[Vss]
QH407 TC7S32FU
RH432 0
X_OUT 046:1D
CH420 KETSU
CH421 16V 0.1uF
BSSW 046:1E
050:5C CONV_RESET

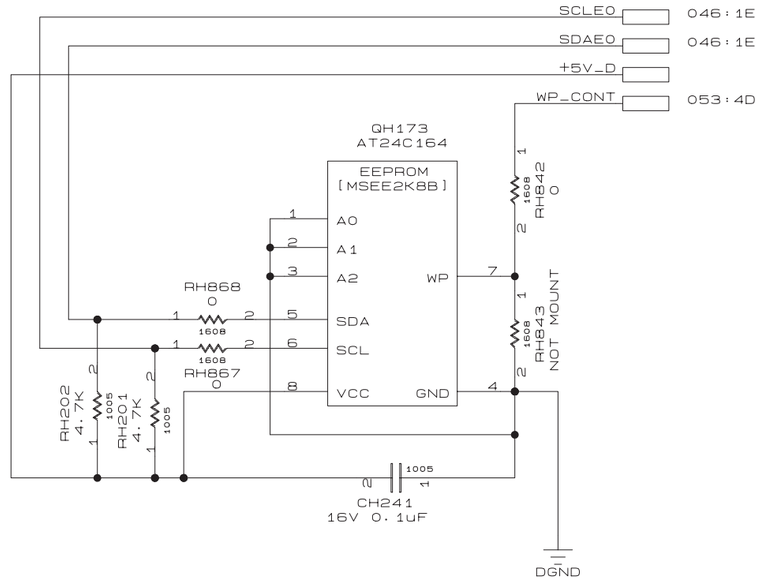
RH411 0Ω
RH431 100
RH407 100
RH408 100
MUXDMUX [EC4053]
QH404 SN74LV4053A
INH
A COM B COM C COM VCC GND GND
CH414 16V 0.1uF
+5V_D
DGND

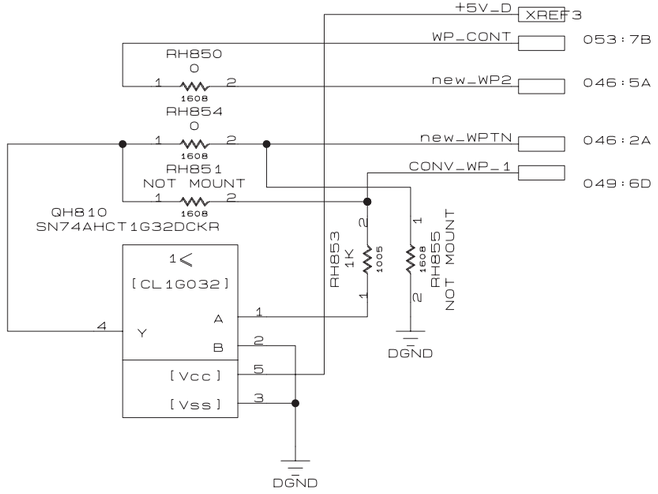
SCLM_q001 046:1E
SDAM_q001 046:1E
RH418 0Ω
RH419 0Ω
I2CS 049:6D:053:4B
SCLM 049:7E
SDAM 049:7E
RH414 100
RH416 100
RH415 100
RH417 100
SCLU 049:7E:053:4B
SDAU 049:7E:053:4B
RH410 0Ω 046:1E:051:1C SCLUsub
RH409 0Ω 046:1E:051:1C SDAUsub

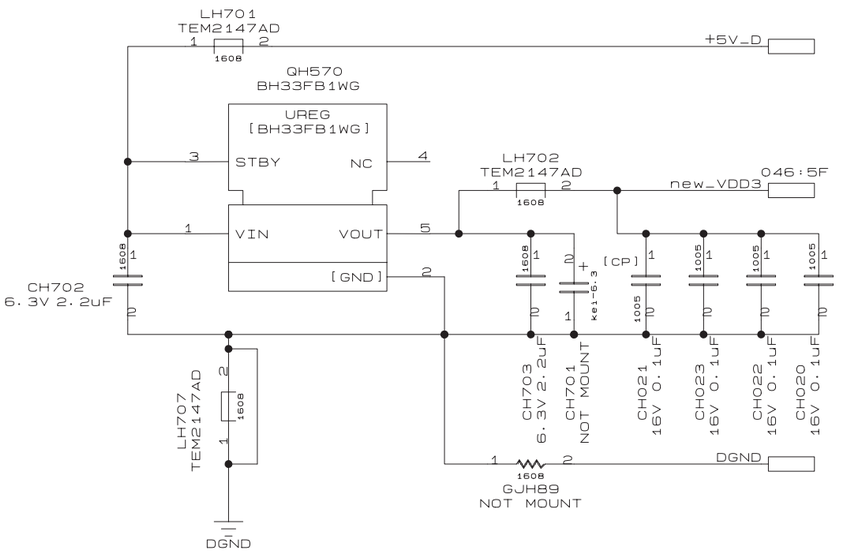
51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (6/8)
SHEET-6/8
SH. NO. 51


OPEN
+12V_A
-5V_B
ANAGND
RH303 15K
RH301 680K
CH301 25V4.7nF
QH305 NJM2580M
RH302 1K
VIDEO AMP [L2580]
POWER_SAVE
VOUT1 VIN1
VOUT2 VIN2
VOUT3 VIN3
VSAG
[GND1] [V+1]
[GND2] [V+2]
[GND3] [V+3]
DH309 1SS355
RH336 0
RH313 470K
CH324 NOT MOUNT
CH305 16V0.1uF
RH344 1K
CH315 NOT MOUNT
TPBM1 [TP]
TPTP1 [TP]
RH343 1K
CH306 16V0.1uF
CH316 NOT MOUNT
RH314 470K
DH310 1SS355
RH337 0
CH303 16V0.1uF
CH323 NOT MOUNT
RH322 1K
RH324 1K
RH306 680K
CH304 25V4.7nF
RH304 15K
RH309 20K
RH305 1K
CH302 16V 0.1uF
PH004 B8BEHF1A [CN8]
RT_P RT_M LT_P LT_M BM_P BM_M TP_P TP_M
DH302 UDZSTE175.6B [ZD]
DH301 UDZSTE175.6B [ZD]
DH303 UDZSTE175.6B [ZD]
DH304 UDZSTE175.6B [ZD]
DH305 UDZSTE175.6B [ZD]
DH306 UDZSTE175.6B [ZD]
DH307 UDZSTE175.6B [ZD]
DH308 UDZSTE175.6B [ZD]
+5V_A
RH347 10K
RH326 82K
RH325 82K
RH319 100K
RH317 100K
QH307 NJM2580M
RH331 1.5K
RH333 1.5K
RH334 10K
RH332 10K
DH315 UDZSTE174.7B [ZD]
DH316 UDZSTE174.7B [ZD]
046:5C new_SBI
051:1C TOP
051:1C BOTTOM
[TP] TPTP2
[TP] TPBM2
046:5C new_STI
046:5C new_SRI
051:1C RIGHT
051:1C LEFT
TPLT2 [TP]
TPRT2 [TP]
RH327 1.5K
RH328 10K
RH329 1.5K
RH330 10K
DH313 UDZSTE174.7B [ZD]
DH314 UDZSTE174.7B [ZD]
RH323 100K
RH321 100K
CH313 16V0.1uF
CH314 16V0.1uF
RH345 1K
CH312 16V0.1uF
CH318 NOT MOUNT
CH325 NOT MOUNT
RH316 470K
RH312 680K
CH310 25V4.7nF
CH309 16V0.1uF
DH312 1SS355
RH339 0
RH310 20K
CH308 16V 0.1uF
RH311 1K
RH307 680K
CH307 25V4.7nF
QH306 NJM2580M
RH308 1K
RH338 0
RH315 470K
CH326 NOT MOUNT
CH311 16V0.1uF
RH320 1K
RH318 1K
RH346 1K
CH317 NOT MOUNT
TPLT1 [TP]
51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (7/8)
SHEET-7/8
SH. NO.
52









51HC85/57HC85/65HC15/65HC85
DIGITAL-CONVER (8/8)
SHEET-8/8

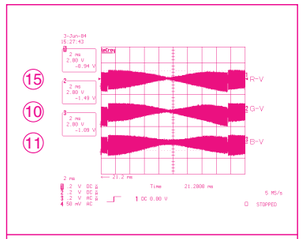
SH. NO.
53

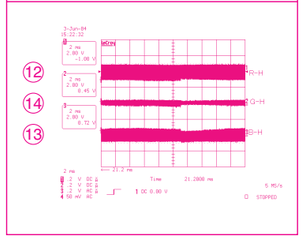
PH001
16R1.5FJNS
[CN16]

CONV_RST 1
CONVER+5V 2
CONVER+16V 3
NC 4
NC 5
GV 6
BV 7
RH 8
GND 9
GND 10
CONVER-5V 11
NC 12
NC 13
BH 14
GH 15
RV 16

CONV_RST 019:1C:050:3C:050:3D
CONVER+5V 049:1F:050:1B
CONVER+16V 054:5B
G_V 050:1E (10)
B_V 050:1D (11)
R_H 050:1D (12)
CONVER-5V 050:1B
B_H 050:1E (13)
G_H (14)
R_V (15)

GND



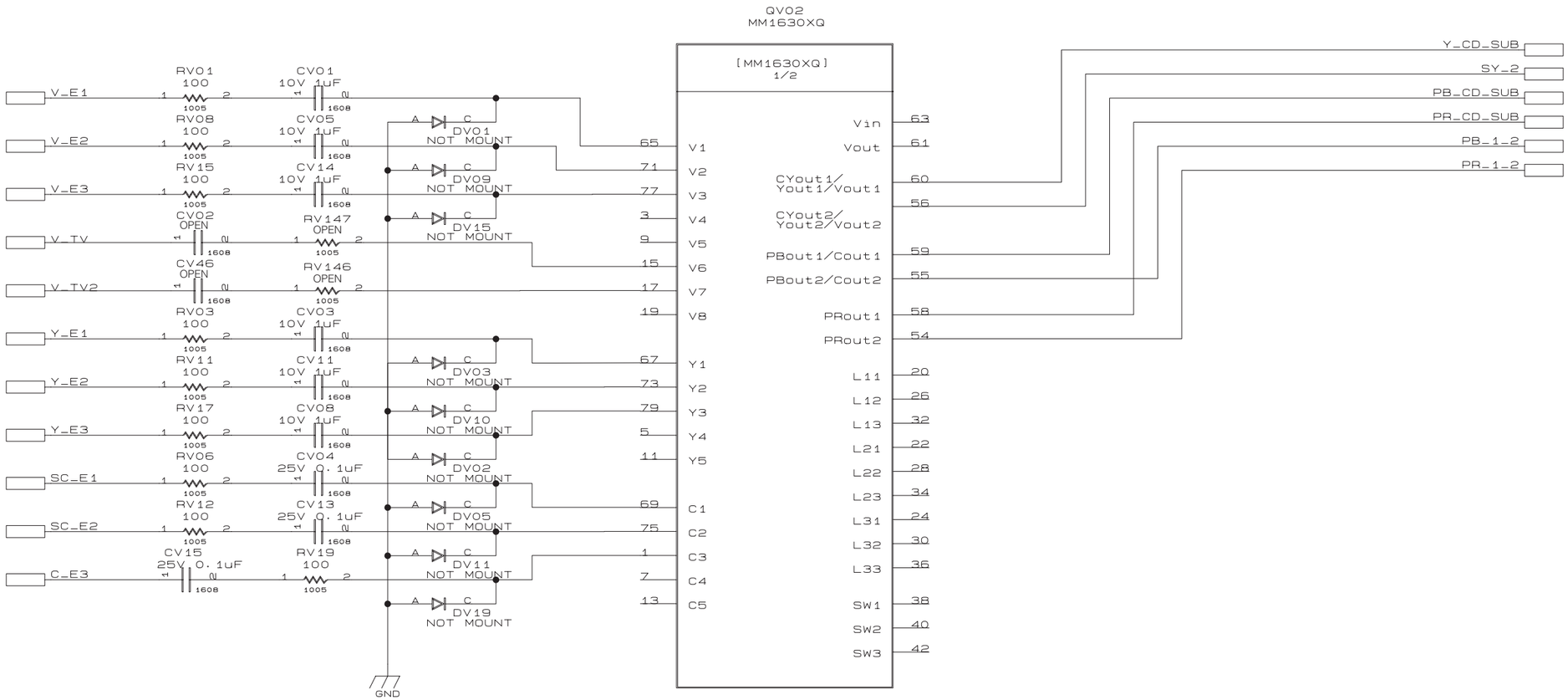


CONVER+16V
RH361 O 1608
CH362 330nF 25V 3216
CH366 0.1uF 25V 1608
QH361 NJM78M12DL1A
UREG [L29025]
IN OUT [GND]
[CP] CH363 16V 47uF 4e1-e3
CH365 0.1uF(Z) 16V 1005
+12V_TF
GND

CONVER+5V
RH368 O 1608
QH362 2SC3326B
049:1E SCL2
RH367 12K 1005
QH363 2SC3326B
049:1E SDA2
RH366 12K 1005
RH365 NOT MOUNT 1005
QH364 2SA1576A [TAP]
RH364 2K 1005
+12V_TF 049:1B:054:8B
CH364 0.1uF(Z) 16V 1005
GND
RH363 O 1608
SCL1 XREF1
SDA1 XREF2
RH362 O 1608

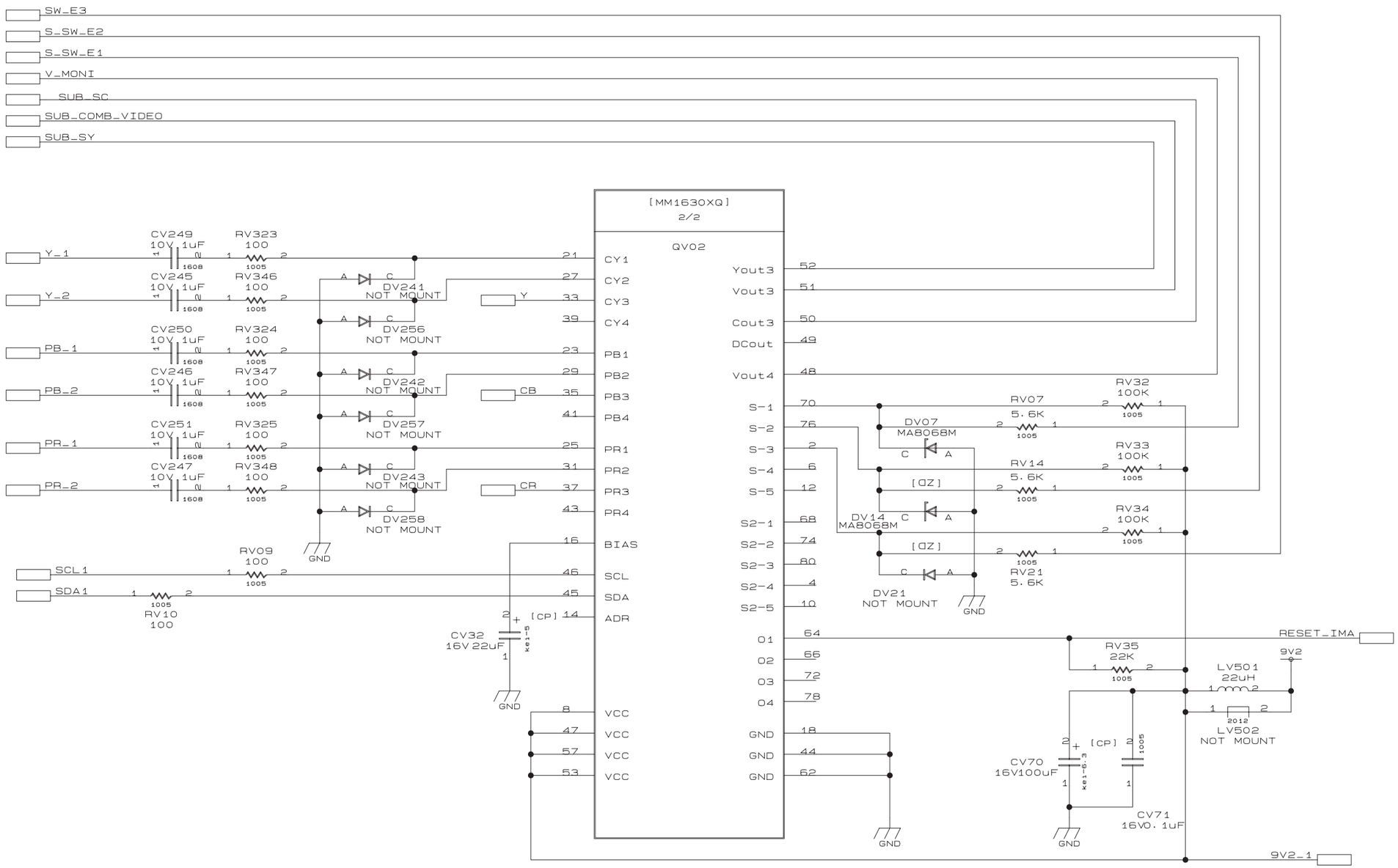
51HC85/57HC85/65HC15/65HC85
CONVER-REG (1/4)
SHEET-1/4

SH. NO.
54



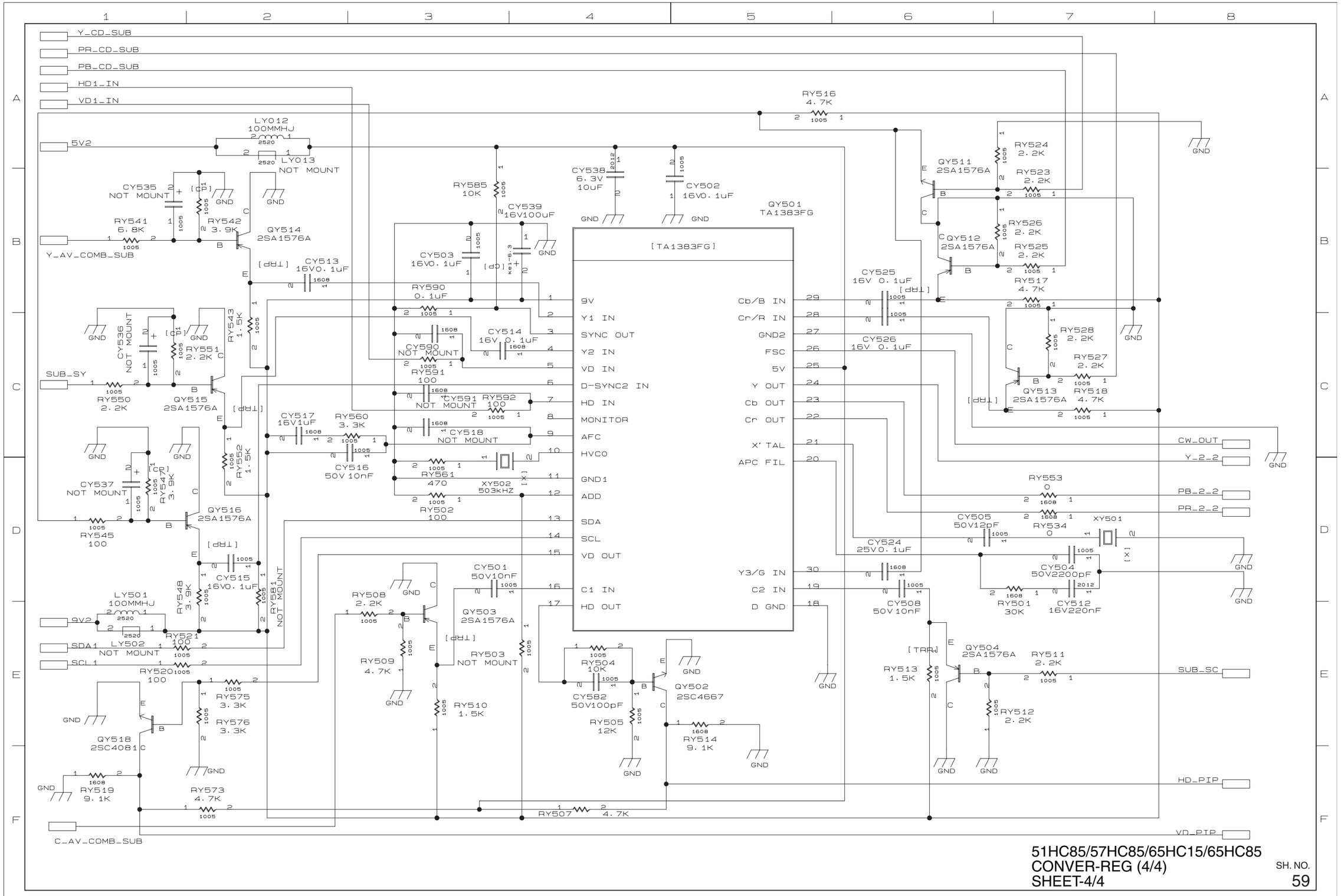
51HC85/57HC85/65HC15/65HC85
CONVER-REG (2/4)
SHEET-2/4

SH. NO.
57



51HC85/57HC85/65HC15/65HC85
CONVER-REG (3/4)
SHEET-3/4

SH. NO.
58


Y_CD_SUB
PR_CD_SUB
PB_CD_SUB
HD1_IN
VD1_IN
5V2
LY012 100MMHJ
LY013 NOT MOUNT
CY535 NOT MOUNT
RY541 6.8K
RY542 3.9K
QY514 2SA1576A
Y_AV_COMB_SUB
CY513 16V0.1uF
RY585 10K
CY539 16V100uF
CY538 6.3V 10uF
CY502 16V0.1uF
CY503 16V0.1uF
RY590 0.1uF
CY514 16V 0.1uF
CY590 NOT MOUNT
RY591 100
CY591 NOT MOUNT
RY592 100
CY518 NOT MOUNT
RY560 3.3K
CY517 16V1uF
CY516 50V 10nF
RY561 470
XY502 503kHZ
RY502 100
RY543 1.5K
CY536 NOT MOUNT
RY551 2.2K
SUB_SY
RY550 2.2K
QY515 2SA1576A
RY552 1.5K
CY537 NOT MOUNT
RY547 3.9K
QY516 2SA1576A
RY545 100
CY515 16V0.1uF
RY548 3.9K
RY581 NOT MOUNT
LY501 100MMHJ
9V2
RY521 100
SDA1
LY502 NOT MOUNT
SCL1
RY520 100
RY575 3.3K
RY576 3.3K
QY518 2SC4081C
RY519 9.1K
RY573 4.7K
C_AV_COMB_SUB
RY508 2.2K
QY503 2SA1576A
RY509 4.7K
RY503 NOT MOUNT
RY510 1.5K
CY501 50V10nF
RY504 10K
CY582 50V100pF
RY505 12K
QY502 2SC4667
RY514 9.1K
RY507 4.7K
QY501 TA1383FG
[TA1383FG]
9V
Y1 IN
SYNC OUT
Y2 IN
VD IN
D-SYNC2 IN
HD IN
MONITOR
AFC
HVCO
GND1
ADD
SDA
SCL
VD OUT
C1 IN
HD OUT
Cb/B IN
Cr/R IN
GND2
FSC
5V
Y OUT
Cb OUT
Cr OUT
X'TAL
APC FIL
Y3/G IN
C2 IN
D GND
RY516 4.7K
QY511 2SA1576A
RY524 2.2K
RY523 2.2K
QY512 2SA1576A
RY526 2.2K
RY525 2.2K
RY517 4.7K
CY525 16V 0.1uF
CY526 16V 0.1uF
QY513 2SA1576A
RY528 2.2K
RY527 2.2K
RY518 4.7K
CW_OUT
Y_2_2
RY553 0
PB_2_2
PR_2_2
CY505 50V12pF
RY534 0
XY501
CY524 25V0.1uF
CY504 50V2200pF
RY501 30K
CY512 16V220nF
CY508 50V10nF
QY504 2SA1576A
RY511 2.2K
RY513 1.5K
RY512 2.2K
SUB_SC
HD_PIP
VD_PIP
GND
51HC85/57HC85/65HC15/65HC85
CONVER-REG (4/4)
SHEET-4/4
SH. NO.
59

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

TOSHIBA

FILE NO. 020-200507

DRAFT

SERVICE MANUAL

Projection Monitor

51HC85
57HC85
65HC15
65HC85

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DOCUMENT CREATED IN JAPAN, June, 2005

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APPENDIX:

CIRCUIT DIAGRAM

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.

   Refer to table-1 for high voltage (A), (B).
   (See SETTING & ADJUSTING DATA on page 20)

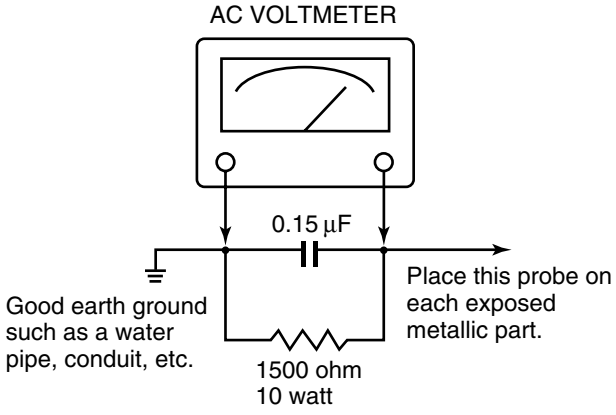
   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

   Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.675 volts rms. This corresponds to 0.45 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

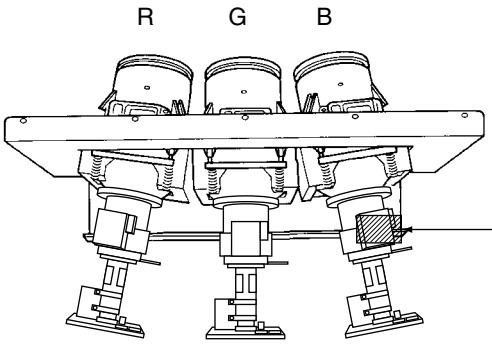

AC VOLTMETER
0.15 μF
Place this probe on each exposed metallic part.
Good earth ground such as a water pipe, conduit, etc.
1500 ohm
10 watt

PRODUCT SAFETY NOTICE

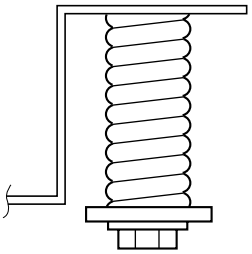
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

CRT ASSEMBLY REPLACEMENT AND MOUNTING

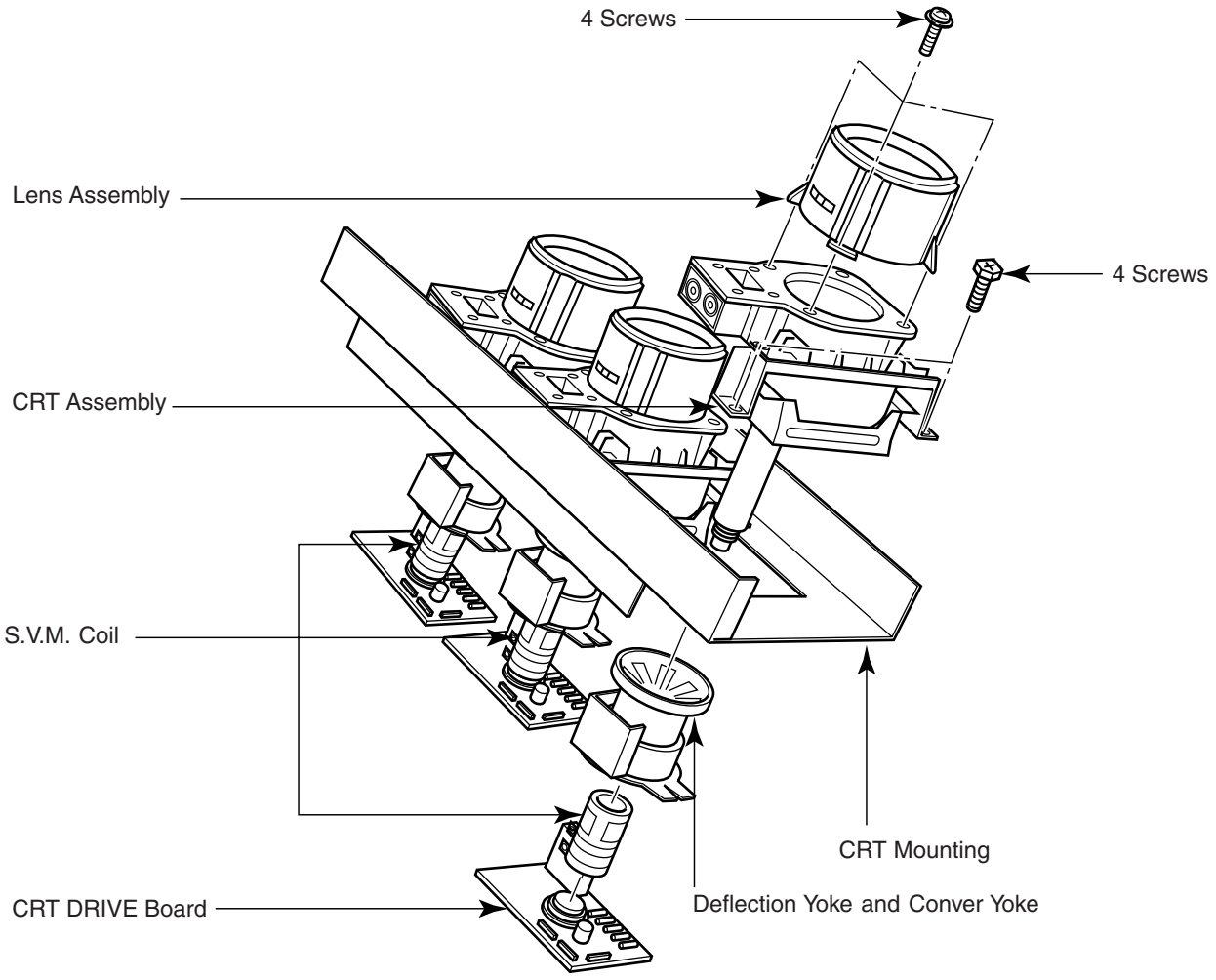
CAUTION : DO NOT LOOSEN THE HEX HEAD BOLTS WITH SPRINGS (12 PCS), BECAUSE THOSE ARE FOR SEALING OF CRT COOLANT.



Attention Serviceman



The Hex Head Bolts with Springs. (see sketch) used on CRT assembly, are NOT Adjustment Screws DO NOT LOOSEN-FLUID LEAKAGE WILL OCCUR.



Lens and Neck Components View

TO REMOVE CRT (Same procedure for R, G, B)

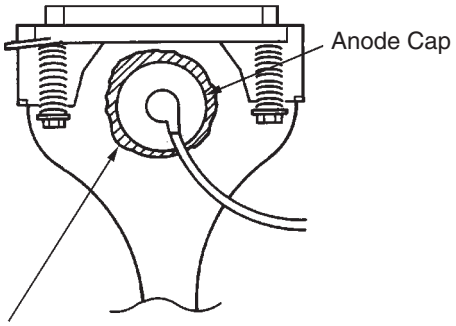
1. Remove CRT DRIVE Board, S. V. M. COIL and DEF. YOKE from CRT.
2. Remove Lens Assembly.
3. Detach CRT Anode Cap from CRT.
4. Remove CRT Assembly from CRT Mounting.

CRT REPLACEMENT (Same procedure for R, G, B)

Reverse the removal procedures except the followings.

1. Anode Cable should be replaced with new one. See “SERVICING PRECAUTIONS” shown below.
2. Install silicon (T461B) to the CRT, replace the Anode cable and put enough silicon again on around the Anode Cap as illustrated.

CAUTION: Align the Anode cable as illustrated on page 4.

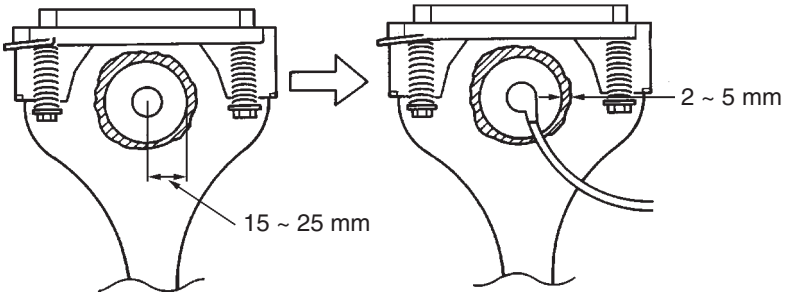


Silicon
(On shaded area)
TSE3843W #23960136

ADJUSTING PROCEDURE IN REPLACING CRT

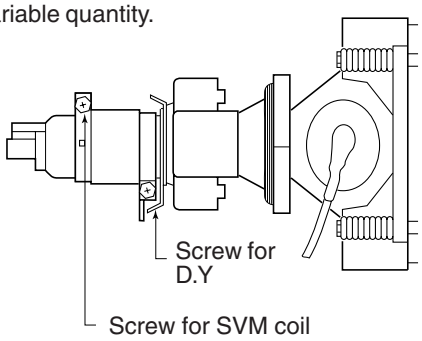
1. R.G.B. FOCUS ADJUSTMENT (page 7.)
2. PICTURE TILT ADJUSTMENT (page 7.)
3. USER CONVERGENCE CENTER CHECK (See owner's manual.)
4. CENTERING ADJUSTMENT (page 7.)
5. CONVERGENCE ADJUSTMENT (page 15.)
6. WHITE BALANCE ADJUSTMENT (page 12.)

Adjustments are complete.



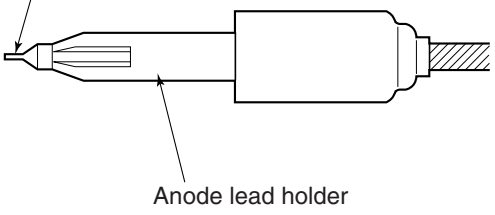
SERVICING PRECAUTIONS

■ Do not use a magnetized screw driver for screws of Deflection Yoke and Velocity Modulation Coil to avoid magnetization of electron gun. Magnetization of electron gun will degrade basic function and result in unbalance of right and left shift of user static convergence, and result in no variable quantity.



■ When replacing the anode cap assembly (CRT) or anode lead assembly (F.B.T.), remove the anode lead holder from old one and attach the holder again to new anode lead.

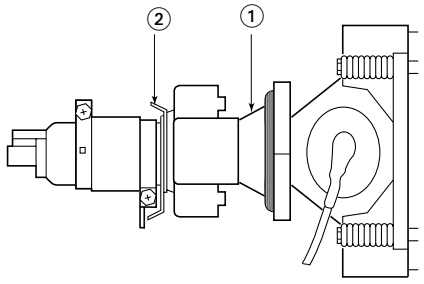
■ Check the point of anode lead in a straight line, if it is winding, please revise it.



WARNING : BEFORE SERVICING THIS CHASSIS, READ THE “X-RAY RADIATION PRECAUTION”, “SAFETY PRECAUTION” AND “PRODUCT SAFETY NOTICE” ON PAGE 3 OF THIS MANUAL.

PICTURE TUBE COMPONENTS ADJUSTMENT

DESCRIPTION OF NECK COMPONENTS



① Deflection yoke and convergence yoke
The position on the neck is required most front (CRT funnel side) and the screw is fastened after rotating yoke adjusting picture tilt.

② Centering magnet
After adjusting picture tilt, picture position is finally fixed by this magnet.
In order to get maximum margin of user convergence control for center of screen, this magnet have to be used for center convergence adjustment.

PREPARATION
Operate the receiver for at least 5 minutes.

R, G, B FOCUS ADJUSTMENT

1. Before adjusting the R, G, B FOCUS, remove the 4 screws of Lens Assembly which is fixed on the CRT Assembly. (See page 4.)
   Then turn around the Lens Assembly by 180 to adjust the fastening screw (Fig. a) and fasten the 4 screws to secure Lens Assembly.
2. Select the adjustment mode. (See page 10.)
3. Press “7” button to display the built-in cross-hatch.
4. Press “0” and “RTN” buttons to make the picture a single Red color.
   100 button ..... to erase Red color
   0 button ..... to erase Green color
   RTN button ..... to erase Blue color.
5. Loosen the fasten screw and adjust Red lens focus to best focusing point of picture center. Then fasten the screw. (See Fig. a.)

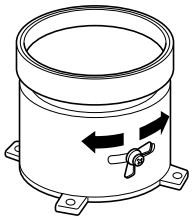


Fig. a

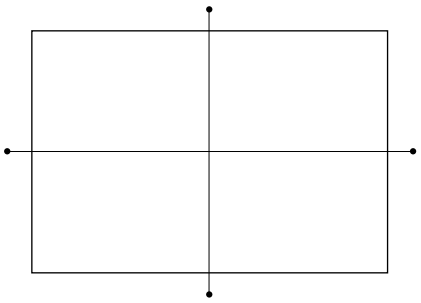
6. Adjust FOCUS VR “R” of FOCUS PACK to find best focusing point of picture center.
7. Repeat steps 3 to 5 for Green and Blue colors.

TILT ADJUSTMENT

Rotate R, G, B deflection yoke so that picture becomes horizon, then fasten screw.

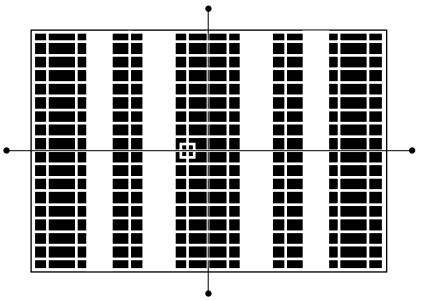
CENTERING ADJUSTMENT

1. Stretch a thread between two center of screen edge (top and bottom, left and right).



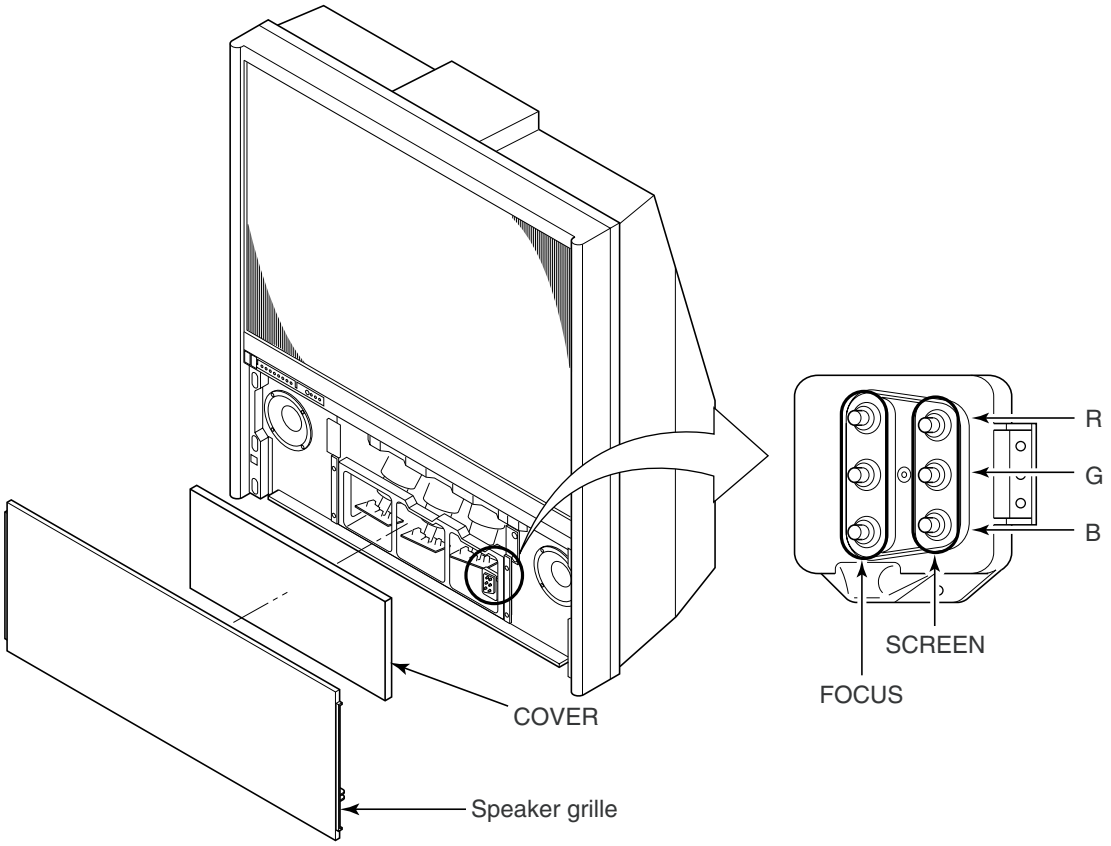
2. Receive NTSC.
   Then select SERVICE MODE. (See Page 10.)

3. Select CONVERGENCE ADJUSTING mode, and press "7" button to display the internal net pattern.
   Move Cursol and recognize horizontal line indicated Y:4. This line is vertical center. Push "9" button to display the vertical stripes, and recognize horizontal center.



4. Perform VCEN adjustment. (See page 16.)
5. Adjust G centering magnet so that the cross-bar pattern center comes to screen center.
6. Perform HEIGHT adjustment .
7. Perform VERT. LINEARITY adjustment.
8. Perform WIDTH adjustment. (See page 16.)
9. Check whole quality of green line.
10. Adjust R, B centering magnet so that the cross-bar pattern center comes to screen center.

LOCATION OF SCREEN AND FOCUS VR'S



REPLACEMENT OF THE CRT

Service parts are provided for each R, G and B.
The contents of the parts are as follows.

	R	G	B
51HC85	23078357	23078358	23078359
57HC85	23447326	23447324	23447327
65HC85	23447328	23447324	23447329
65HC15	23447981	23447982	23447983

REPLACEMENT OF HIGH VOLTAGE CABLE

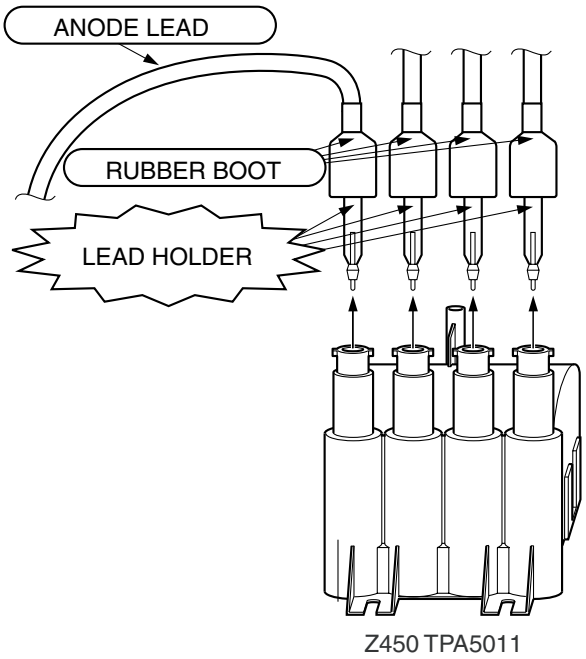


Fig. a

1. When replacing Anode Lead or Anode Cap with new one, remove Lead Holder from old lead as shown in figure below, and put it on new lead. Do not throw away Lead Holder.

NOTE : THE LEAD HOLDER IS ATTACHED TO TPA5011 (Z450), BUT IS NOT ATTACHED TO ANODE LEAD AND ANODE CAP. RUBBER BOOT IS ATTACHED TO ANODE LEAD AND ANODE CAP.

2. Detaching Lead Holder

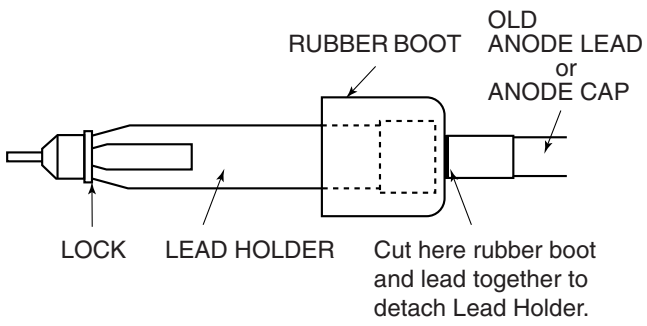


Fig. b

SERVICE MODE

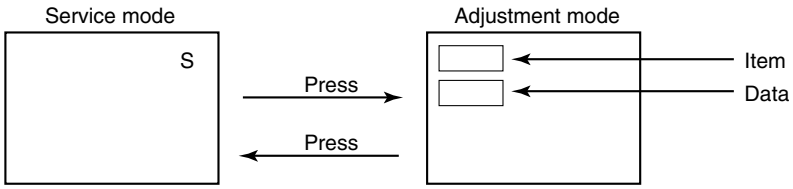
1. ENTERING TO SERVICE MODE

1) Press MUTE button twice on Remote Control.
2) Press MUTE button again to keep pressing.
3) While pressing the MUTE button, press MENU button on TV set.

(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

Screen adjustment mode ON/OFF:	TV (ANT)/VIDEO button (on TV)
Selection of the adjustment items :	Channel ▲/▼ (on Remote) and ▲/▼ (on TV)
Change of the data value :	Volume ▲/▼ (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	RECALL + ▲ button on TV
Initialization of the self diagnostic data:	RECALL + ▼ button on TV

“RCUT” selection :	1 button
“GCUT” selection :	2 button
“BCUT” selection :	3 button
“SCNT” selection :	4 button
“COLC” selection :	5 button
Convergence adj :	7 button
Self diagnostic display :	9 button

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 20)

5. ADJUSTING THE DATA

1) Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

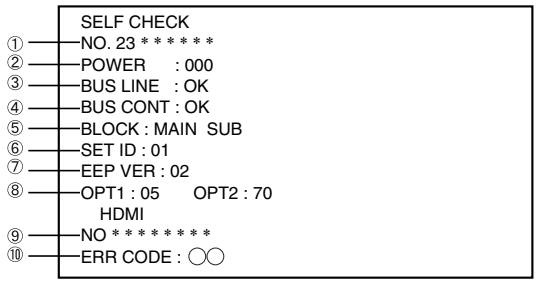
After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the RECALL button on the Remote, then press the ▲button on the TV. The initialization of QA02 has been completed.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. SELF DIAGNOSTIC FUNCTION

1) Press “9” button on Remote Control during display of adjustment menu in the service mode. The diagnosis will begin to check if interface among IC’s are executed properly.
2) During diagnosis, the following displays are shown.


SELF CHECK
①NO. 23 * * * * * *
②POWER : 000
③BUS LINE : OK
④BUS CONT : OK
⑤BLOCK : MAIN SUB
⑥SET ID : 01
⑦EEP VER : 02
⑧OPT1 : 05 OPT2 : 70
HDMI
⑨NO * * * * * * * *
⑩ERR CODE : ○○

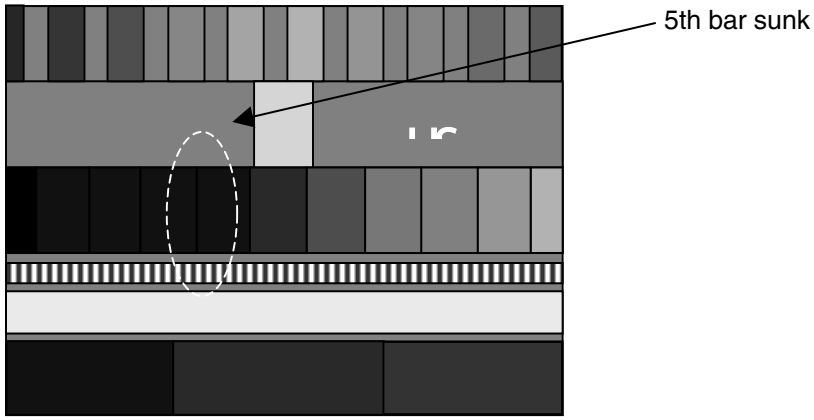
① Part number of microprocessor (QA01)
② Operation number of protection circuit (current limiter) . . . . “000” is normal.
③ BUS line check
- “OK” ..... Normal
- “SCL-GND” or “NG” ..... SCL-GND short circuit
- “SDA-GND” or “NG” ..... SDA-GND short circuit
- “SCL-SDA” or “NG” ..... SCL-SDA short circuit

④ BUS line ACK (acknowledge) check
- “OK” ..... Normal
- Display of Location Number . . . . NG
- (Display example)
- “QA02 NG”, “Q501 NG” etc.
- Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)

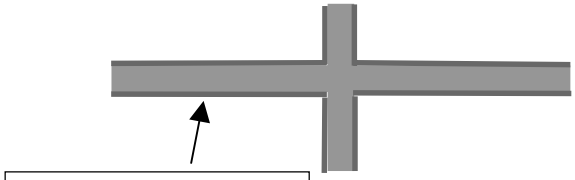
⑤ Sync. signal check
- Green display ..... Normal
- Red display ..... NG
  - MAIN ..... Main sync
  - SUB ..... Sub sync (when turn on the PIP)

⑥ ID code for TV Set
⑦ Version of "EEP"
⑧ Data for "OPT"
⑨ Part number of HDMI microprocessor
⑩ HDMI error code

ELECTRICAL ADJUSTMENTS

ADJUSTING ITEM	PROCESS INSTRUCTIONS	SIGNAL	ADJUSTMENT SPECIFICATION
SCREEN ADJUST	1. Heat runnning the set at minimum 15 minutes. 2. Go into screen adjustment mode. Adjust Focus pack Screen VR of Red, Green, and Blue by looking directly into each CRT and adjusting each screen VR until CRT is just lit on left side of CRT.		
WHITE BALANCE ADJUSTMENT	1. Adjust white luster level to get 4.3cd/m^2 on dark area, and get 264.3cd/m^2 on bright area. 2. Using the data up and down keys, cycle through the adjustments for RED DRIVE, BLUE DRIVE, RED BIAS and BLUE BIAS. Adjust RED DRIVE, BLUE DRIVE for bright area, and adjust RED BIAS and BLUE BIAS for dark area. 3. Continue to make adjustments color temperature to spec on each area.	White luster signal (Valuable input level)	10500k+0UV Same spec is applied on dark area and bright area.
SUB-BRIGHT ADJUSTMENT	1. Receive Sub-Bright pattern on Video input. 2. Go into BRTC of service mode. 3. Press DATA UP/DOWN to adjust Sub-Bright level to spec.  	Video input SUB-BRIGHT SIGNAL (Pedestal to white peak: 714mV ±30mV Value of low 10 steps: 200mV ±10mV)	5TH±1 BAR SUNK

FOCUS ADJUSTMENT (1/2)

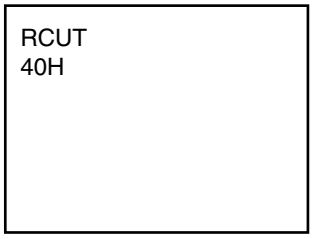
ITEM	ADJUSTMENT METHOD
Focus Adjustment	(Condition) • User Adjustment : SPORTS (CONTRAST MAX, BRIGHTNESS CENTER) • Adjust after Centering Magnet adjusts. • Signal : Lens Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) Electrical Focus : R Dot cross (NTSC) G Dot cross (NTSC) B Dot cross (NTSC) (Adjustment) 1. Common Items 1) Rough Adjust the lens focus and electrical focus of each color(R, G, B). 2. Green Adjustment 1) Receive green single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Green electrical focus. Adjust Green electrical focus VR on focus pack (Z410) for best center focus. If the focus blur on screen center and circumference, adjust the electrical focus is best point on all of screen. 4) Adjust Green lens focus. Receive the Dot Cross pattern. Adjust Green lens for best center focus. Green lens focus adjustment target Dot-cross has red flare (red flare width :1mm)  5) Repeat (3)~(4),and adjust best focus point.

FOCUS ADJUSTMENT (2/2)

ITEM	ADJUSTMENT METHOD
Focus Adjustment	3. Red Adjustment 1) Receive Red single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Red electrical focus. Adjust Red electrical focus VR on focus pack (Z410) for best center focus. 4) Adjust Red lens focus. Receive the Dot Cross pattern. Adjust Red lens for best center focus. 5) Repeat (3)~(4),and adjust best focus point. 4. Blue Adjustment 1) Receive Blue single color by shielding jig. 2) Receive the Dot Cross pattern. 3) Adjust Blue electrical focus. Adjust Blue electrical focus VR on focus pack (Z410) for best center focus. (The Brightness is minimum point of Blue.) 4) Adjust Blue lens focus. Receive the Dot Cross pattern. Adjust the Blue lens for best center focus. After easy lens adjustment, turn to right side lens focus screw, and so dot-cross has flare. Next turn left focus screw, so flare disappears in Dot-Cross and Dot-Cross become blur. This point is blue lens focus adjustment target. (flare disappear and become blur)

CONVERGENCE ADJUSTMENT

1. Receive NTSC signal.
2. Enter to the service mode. (See Page 10.)



3. Press "7" button to enter the convergence adjusting mode, and the internal net pattern will be displayed. Then, press "9" button to display veritcal stripes.
4. Select the point and the color by pressing following buttons. (Cursor should be blinking.)
   "2", "8", "4", "6" : To select point
   "3" : To select color
5. Then press "5" button, and adjust the convergence by pressing following buttons. (Cursor should not be blingking.)
   "2", "8", "4", "6" : To adjust convergence
   "3" : To select color
6. Repeat from steps 3 to 4 until the convergence and the geometry become fine. (See Page 14.)
7. Press "7" button to memorize the adjusted data.

EXPLANATION OF KEY-FUNCTION IN THE CONVERGENCE ADJUSTMENT MODE

Load BACK UP DATA:	1 button
Up :	2 button
Selet Green color:	3 button
Left :	4 button
Blinking of cursor ON/OFF:	5 button
Right:	6 button
Adjust mode ON/OFF:	7 button
Down:	8 button
Vertical stripe ON/OFF	9 button
Erase Green line:	0 button
Erase Red line:	100 button
Erase Blue line:	ENT button

Note: The following message will appear while pressing "1" button.
ENTER: TO LOAD BACKUP DATA
MUTE: TO LOAD INITIAL DATA
EXIT: TO EXIT

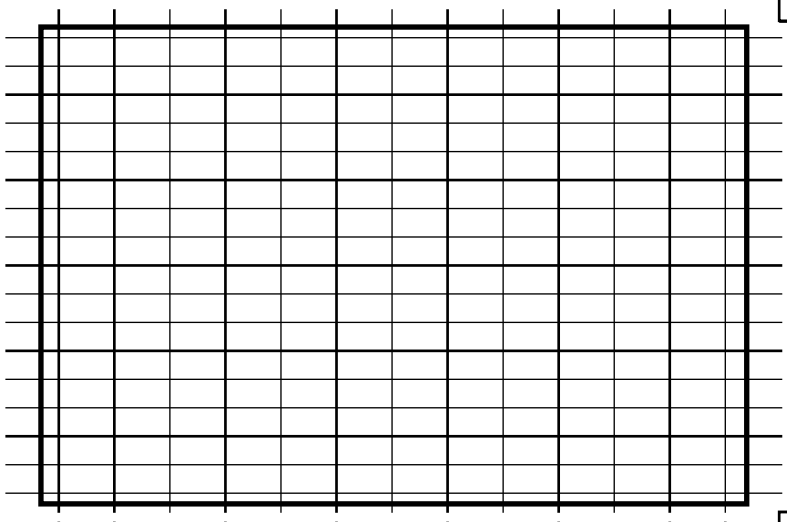
BACKUP DATA sets in factory by performing CALIBRATION. BACKUP DATA updates by performing CALIBRATION again. INITIAL DATA uses the seed data on this model. Thus, it cannot updates. INITIAL DATA is not adjusted. Therefore, convergence data operates incorrectly. Normally, BACKUP DATA operates as base data on this model. If BACKUP DATA is incorrectly operated, INITIAL DATA is operated instead of BACKUP DATA.

DEFRECTION and CONVERGENCE

ITEM	NAME	SETTING	INPUT SIGNAL	TEST POIN	MEASURING INSTRUMENT	ADJUSTMENT METHOD	ADJUSTMENT SPEC
VCEN	VERTICAL Raster centeing Adjustment	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT	Retma Signal	Between TP-G to TP-V	Digital Volt Meter	Adjust the voltage between TP-G and TP-V.	0±10 mV
DY Tilt Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	D-Cross Pattern	Picture Adjustment	Picture Adjustment	After roughly the green centering magnet alignment, adjust the green yoke so that the D-cross is as close as possible to the dummy screen cross. Adjust the Red and Blue in the same manner as Green.	The dummy screen cross and D-cross Gap ± 5mm.
Centering magnet Adjustment		CONTRAST: MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE :FULL	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the green center to the screen center with the centering magnet on Retma signal. And adjust the Red and Blue center to the green center each.	Color gap at the screen center is within ± 3mm.
WID	Horizontal Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS:CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE :ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Horizontal width by WID on the green raster only. After finishing Convergence adjustment, make sure that the width is the same as the spec.	11 ± 1 bar In case of C-MUTE OFF is the same spec as well.
HIT (VLIN)	Vertical Adjustment (FULL)	CONTRAST :MAX BRIGHTNESS: CNT COLOR :CNT TINT :CNT PIC SIZE : FULL C-MUTE : ON	Retma Signal	Picture Adjustment	Picture Adjustment	Adjust the Vertical height by HIT(VLIN) on the green raster only.After finishing Convergence adjustment, make sure that the height is the same as the spec with C-MUTE OFF.	In case of Convergence mute. Upper left...5 ± 0.5 bar Bottom right...5 ± 0.5 bar In case of C-MUTE OFF. Upper left...4 ± 0.5 bar Bottom right...4 ± 0.5bar.
Convergence			Retma Signal	Picture Adjustment	Picture Adjustment	Refer to the following (Convergence Net Geometry)	

CONVERGENCE (Adjust the voltage between TP-G and TP-V)

Net Pattern Geometry



Model	51WIDE	57WIDE	65WIDE
V size	635.085	708.750	810.00
	308.0	344.0	392.8
	231.0	258.0	294.6
	115.5	129.0	147.3
	0.0	0.0	0.0
	115.5	129.0	147.3
	231.0	258.0	294.6
	308.0	344.0	392.8
V span	38.5	43.0	49.1

Model	H size										H span
51WIDE	1129.0	537.6	448.0	268.8	89.6	0.0	89.6	268.8	448.0	537.6	89.6
57WIDE	1260.0	600.0	500.0	300.0	100.0	0.0	100.0	300.0	500.0	600.0	100.0
65WIDE	1442.0	686.7	572.2	343.3	114.4	0.0	114.4	343.3	572.2	686.7	114.4

UNIT: mm

NOTES

In many cases, color misconvergence may be corrected by returning HIT and WID data in main deflection side to initial adjusting values. Following cases will surely require readjustment of convergence.

CRT REPLACEMENT

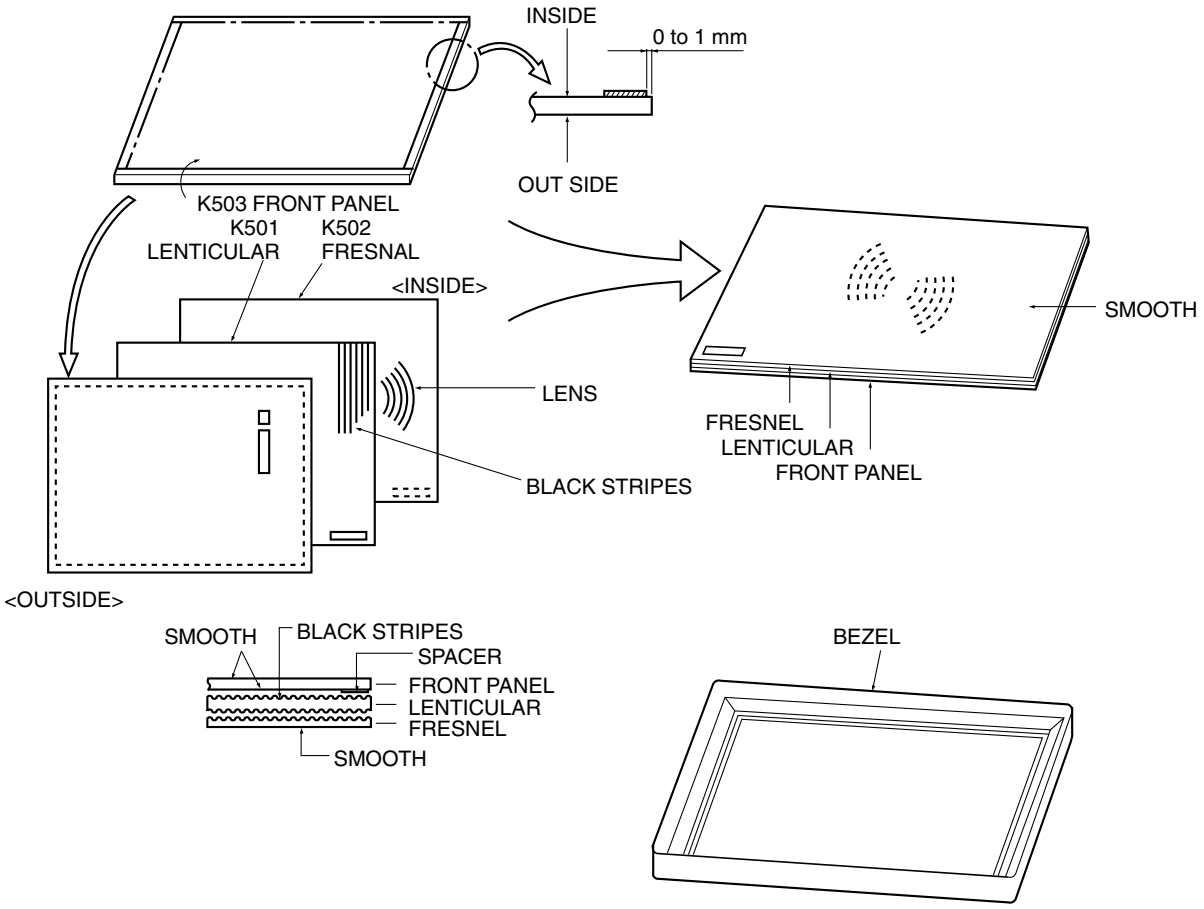
When CRT is replaced, main deflection readjustment and color matching are required.
Perform following procedures.

1. Replace two CRT's of blue and red.
2. Perform horizontal adjustment for blue and red yokes on base of green CRT data. Mount yoke and velocity mod. coil alignment, pushing towards CRT without gap.
3. Adjust alignment of blue and red. (Refer Alignment adjustment for details.)
4. Rotating centering magnet, adjust CRT centers of red and blue to CRT center of green.
   (Picture position adjustment)
5. Adjust HIT and WID data of main deflection, and decide data at the most precise screen comparing to green data.
6. Adjust convergence of screen picture for color matching. Do not move green one at this time.
7. After convergence adjustment of screen picture finishes, replace green CRT.
   For green CRT as well, repeat steps 2 to 5 above on bases of red and blue color matching to adjust convergence.
8. Execute TOUCH FOCUS following instructions displayed on the screen after finishing convergence adjustments of all the colors.
   Note: Press button "7" again after "PLEASE PUSH TOUCH FOCUS" has been displayed. Then, TOUCH FOCUS will not be executed, and the current state of convergence will be displayed.

SCREEN AND MIRROR ALIGNMENTS

ASSEMBLING OF FRONT SCREEN

MOUNTING OF FRONT SCREEN



CAUTION : Do not hold the optical system parts (lens and mirror) with bare hand to avoid finger-prints on the surface of those parts.

HOW TO CLEAN LENS AND MIRROR

1. Be sure to remove sand dust with an air brush, etc.
2. When it is stained slightly, breathe upon it and wipe away with the specified cleaning cloth.
   For other stains than the above, wipe the stains away with the specified cloth into which a cleaning liquid has been soaked.

Cleaning liquid..... **LENS LUSTER** (Manufactured by Edmund Scientific Co.), etc.

HOW TO CLEAN SCREEN

When cleaning the screen, use a soft cloth so as not to damage the screen.

1. Wipe the screen with a dry cloth to remove moisture on the screen.

Note : Absolutely do not use detergent, water, alcohol, benzine, thinner, etc. for cleaning in order not to wipe away the black print on the surface.

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST to minimum (zero beam current).
3. High voltage must be measured below (B) kV.
   Refer to table-1 for high voltage (B).
   (See SETTING & ADJUSTING DATA on page 20)
4. Vary the BRIGHTNESS to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CAUTION:

When the following parts fail, check the High Voltage after replacing.

Location No.	Name	Descriptions
		51", 57", 65"
T461Z	Flyback	TFB3094ZD
C440	Capacitor	1000pF, ±3%
C443	Capacitor	4700pF, ±3%
C444	Capacitor	3600pF, ±3%
C467	Capacitor	5600pF, ±5%
C468	Capacitor	6800pF, ±5%

ANODE VOLTAGE MEASURING METHOD

CAUTION: Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, DEFLECTION assembly, and POWER SUPPLY assembly).

1. Disconnect the FBT anode cable as outlined below. Measure high voltage at the point where the cable enters the FBT.
2. Holding the rubber cover firmly, turn it counterclockwise and check that the lock has been disengaged. (See Fig. b on page 9.)
3. Determine the extent of the rubber cover before disconnecting the cable.
4. Pull straight up the anode cable to disconnect.
5. When reconnecting the cable, proceed in the reverse order. After reconnecting, tug on the cable to check that it is secure.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on.
2. Temporarily short TP- (R) and TP- (X) on the DEF/POWER Board with a jumper wire.
   Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the receiver on to produce a normal picture.

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】

		51", 57", 65"
HIGH VOLTAGE AT ZERO BEAM:	(A)	32.8 kV
MAX HIGH VOLTAGE:	(B)	33.9 kV

Table-1

【SERVICE MODE】

ADJUSTING ITEMS AND DATA IN THE SERVICE MODE:

Item	Name of adjustment	Preset	Data
RCUT	R CUT OFF	80H	←
BCUT	B CUT OFF	80H	←
RDRV	R DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	BRIGHT CENTER	80H	←
HIT	PICTURE HIT	30H	←
LIN	V LINEARITY	12H	←
VSC	V S CORRECTION	29H	←
WID	PICTURE WIDTH	48H	←

Item	Name of adjustment	Preset	Data
COLC	COLOR CENTER	5DH	←
VCP	V COMPENSATION	06H	←
PARA	EW PARABOLA	0FH	←
CNR	EW M CORRECTION	10H	←
HCP	H COMPENSATION	00H	←
VFC	V f CORRECTION	00H	←
VCEN	V CENTERRING	7AH	←
TVOP	TV OPTION	40H	←

Table-2

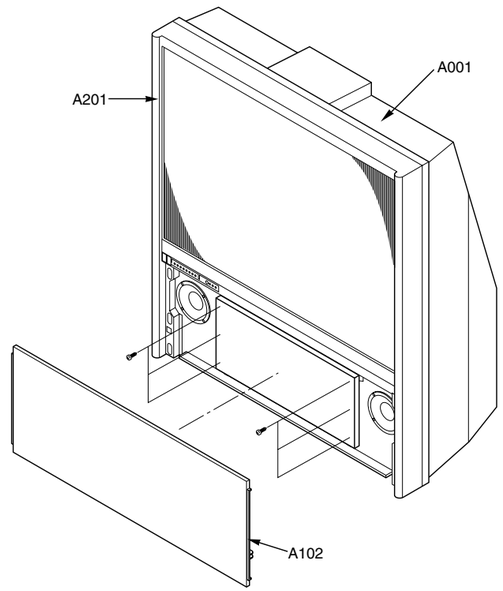
【CIRCUIT CHECKS】

HIGH VOLTAGE DET	Q306 #⑧pin-GND	9.0 V

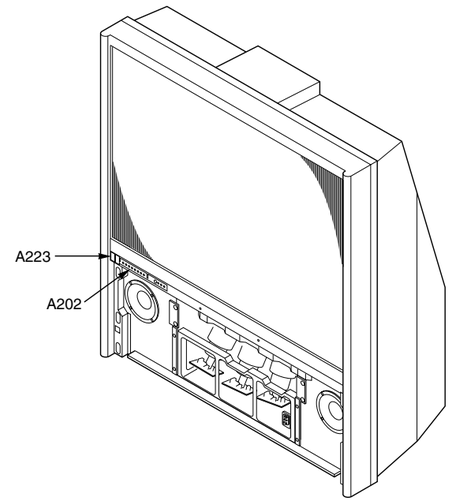
Table-3

MECHANICAL DISASSEMBLY

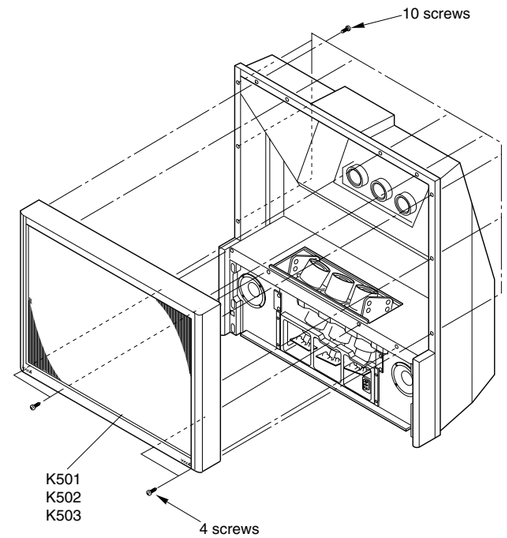
1 Speaker Grille Removal



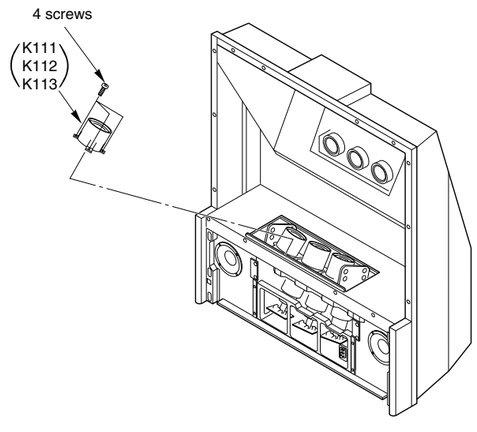
2 Control Panel Removal



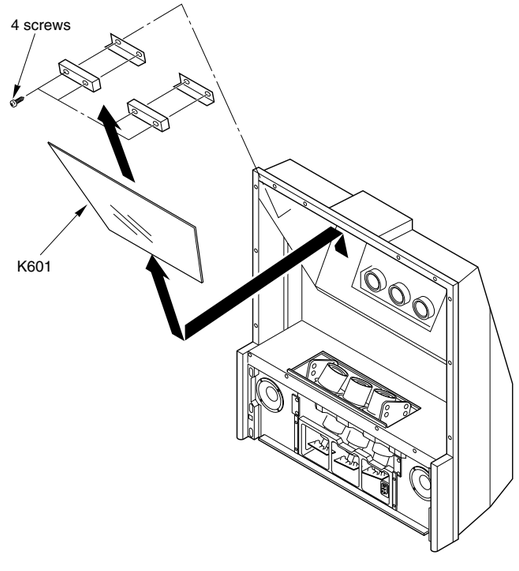
3 Front Mask Removal



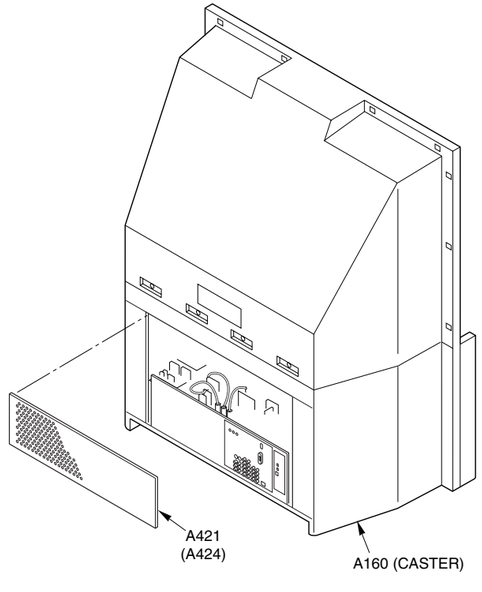
4 Shield Plate, Lens Removal



5 Mirror Removal



6 Back Board Removal



CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:

The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

The PC board assembly with ∗ mark is no longer available after the end of the production.

Model : 51HC85/57HC85/65HC15/65HC85

Capacitors	CD	: Ceramic Disk	PF	: Plastic Film	EL	: Electrolytic
Resistors	CF	: Carbon Film	CC	: Carbon Composition	MF	: Metal Film
	OMF	: Oxide Metal Film	VR	: Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Parts No.	Description
#1 : [51HC85]		
#2 : [57HC85]		
#3 : [65HC15]		
#4 : [65HC85]		
CAPACITORS		
C108	76665221	ELECTROLYTIC, 10V 220UF M 3A
C109	76100104	CERAMIC CHIP, 25V F 0.1UF Z
C110	76794101	ELECTROLYTIC, 16V 100UF M
C221	76503041	PLASTIC FILM , 63V 0.1UF J
C301	76503053	PLASTIC FILM, 63V 1UF J
C302	76669010	ELECTROLYTIC, 50V 1UF M 3A
C303	76503053	PLASTIC FILM, 63V 1UF J
C308	76567223	PLASTIC FILM, 50V 0.022UF J
C309	76109102	CERAMIC CHIP, 50V B 1000PF K
C310	76073053	ELECTROLYTIC, 25V 100UF M 3A
C311	76109103	CERAMIC CHIP, 50V B 0.01UF K
C312	76109332	CERAMIC CHIP, 50V B 3300PF K
C314	76503037	PLASTIC FILM, 63V 0.047UF J
C315	76073020	ELECTROLYTIC, 10V 1000UF M 3A
C320	76669101	ELECTROLYTIC, 50V 100UF M
C321	76669101	ELECTROLYTIC, 50V 100UF M
C323	76109473	CERAMIC CHIP, 25V B 0.047UF K
C324	76503053	PLASTIC FILM, 63V 1UF J
C325	76082057	PLASTIC FILM, 100V 0.22UF J
C327	76092730	CERAMIC CHIP, 16V B 0.1UF K
C328	76082256	PLASTIC FILM, 100V 2200PF J
C330	76073034	ELECTROLYTIC, 16V 10UF M 3A
C332	76669101	ELECTROLYTIC, 50V 100UF M
C333	76082272	PLASTIC FILM, 100V 0.047UF J
C334	76109471	CERAMIC CHIP, 50V B 470PF K
C338	76666100	ELECTROLYTIC, 16V 10UF M 3A
C340	76073037	ELECTROLYTIC, 16V 47UF M 3A
C361	76092730	CERAMIC CHIP, 16V B 0.1UF K
C362	76109473	CERAMIC CHIP, 25V B 0.047UF K
C370	76669229	ELECTROLYTIC, 50V 2.2UF M 3A
C371	76092730	CERAMIC CHIP, 16V B 0.1UF K
C401	76214332	CERAMIC DISC, 500V B 3300PF K
C402	76214391	CERAMIC DISC, 500V B 390PF K
C405	76503041	PLASTIC FILM , 63V 0.1UF J
C412	76828124	PLASTIC FILM, 200V 0.12UF J
C415	76092484	CERAMIC DISC, 2KV B 1500PF K
C416	76676220	ELECTROLYTIC, 100V 22UF M 3A
C417	76503334	PLASTIC FILM, 250V 1.5UF J
C419	76105331	CERAMIC CHIP, 50V CH 330PF J
C420	76503041	PLASTIC FILM , 63V 0.1UF J

Location No.	Parts No.	Description
C422	76109102	CERAMIC CHIP, 50V B 1000PF K
⚠ C423	76503252	PLASTIC FILM, 400V 0.3UF J
⚠ C425	76503142	PLASTIC FILM, 400V 0.27UF J
C426	76211222	CERAMIC DISC, 2KV B 2200PFK
C432	76567333	PLASTIC FILM, 50V 0.033UF J
⚠ C440	76503059	PLASTIC FILM, 1800VH 1000PF H
⚠ C443	76503099	PLASTIC FILM, 1800VH 4700PF H
⚠ C444	76503347	PLASTIC FILM, 1800VH 3600PF H
C445	76828473	PLASTIC FILM, 200V 0.047UF J
C446	76073120	ELECTROLYTIC, 250V 33UF
C448	76073118	ELECTROLYTIC, 160V 33UF M
C449	76214221	CERAMIC DISC, 500V B 220PF K
C450	76073057	ELECTROLYTIC, 25V 1000UF M 3A
C460	76678220	ELECTROLYTIC, 200V 22UF M
C463	76109682	CERAMIC CHIP, 50V B 6800PF K
C464	76503149	PLASTIC FILM, 250V 3.3UF
⚠ C467	76820562	PLASTIC FILM, 630V 5600PF J
⚠ C468	76820682	PLASTIC FILM, 630V 6800PF J
C473	76092730	CERAMIC CHIP, 16V B 0.1UF K
C481	76092784	CERAMIC CHIP, 10V B 0.33UF K
C482	76109822	CERAMIC CHIP, 50V B 8200PF K
C483	76105470	CERAMIC CHIP, 50V CH 47PF J
C490	76073037	ELECTROLYTIC, 16V 47UF M 3A
C491	76666100	ELECTROLYTIC, 16V 10UF M 3A
C496	76503049	PLASTIC FILM, 63V 0.47UF J
C497	76085022	ELECTROLYTIC, NP, 16V 100UF M 3A
C499	76666220	ELECTROLYTIC, 16V 22UF M 3A
C601	76109681	CERAMIC CHIP, 50V B 680PF K
C602	76109681	CERAMIC CHIP, 50V B 680PF K
C603	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C604	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C605	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C606	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C607	76073053	ELECTROLYTIC, 25V 100UF M 3A
C608	76073086	ELECTROLYTIC, 50V 10UF M 3A
C612	76073039	ELECTROLYTIC, 16V 220UF M 3A
C661	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C662	76073086	ELECTROLYTIC, 50V 10UF M 3A
C663	76073086	ELECTROLYTIC, 50V 10UF M 3A
C665	76109103	CERAMIC CHIP, 50V B 0.01UF K
C666	76073084	ELECTROLYTIC, 50V 4.7UF M 3A
C667	76794100	ELECTROLYTIC, 16V 10UF M
C680	76073073	ELECTROLYTIC, 35V 2200UF M 3A
C681	76109103	CERAMIC CHIP, 50V B 0.01UF K
C682	76073082	ELECTROLYTIC, 50V 2.2UF M 3A
C683	76795101	ELECTROLYTIC, 25V 100UF M

Location No.	Parts No.	Description
C684	76795470	ELECTROLYTIC, 25V 47UF M
C698	76085055	CHEMICON NP 25V 222 25V 2200UF M
C699	76085055	CHEMICON NP 25V 222 25V 2200UF M
⚠ C801	76503004	PLASTIC FILM, AC275V 0.47UF M
C805	76092281	CERAMIC DISC, AC250V E 4700PF
C809	76086067	CHEMICON 200V 102M LGQ2D102MESHTL
C810	76086067	CHEMICON 200V 102M LGQ2D102MESHTL
⚠ C811	76092595	CERAMIC DISC, AC250V E 2200PF M
⚠ C812	76092595	CERAMIC DISC, AC250V E 2200PF M
⚠ C814	76092579	CERAMIC DISC, AC250V B 470PF K
C840	76679220	ELECTROLYTIC, 250V 22UF M 3A
C841	76073097	ELECTROLYTIC, 10V 2200UF M 3A
C842	76503041	PLASTIC FILM , 63V 0.1UF J
C843	76092333	CERAMIC DISC, 2KV 100PF K
C845	76669229	ELECTROLYTIC, 50V 2.2UF M 3A
C849	76073038	ELECTROLYTIC, 16V 100UF M 3A
C850	76073187	ELECTROLYTIC, 35V 560UF M 3A
C851	76073187	ELECTROLYTIC, 35V 560UF M 3A
C852	76073169	ELECTROLYTIC, 25V 470UF M 3A
C853	76073169	ELECTROLYTIC, 25V 470UF M 3A
C854	76667470	ELECTROLYTIC, 25V 47UF M 3A
C860	76214103	CERAMIC DISC, 500V B 0.01UF K
C862	76092341	CERAMIC DISC, 2KV R 470PF K
C863	76503045	PLASTIC FILM, 63V 0.22UF J
C866	76503053	PLASTIC FILM, 63V 1UF J
C867	76591472	PLASTIC FILM, 50V 4700PF J
C868	76669470	ELECTROLYTIC, 50V 47UF M 3A
C869	76678229	ELECTROLYTIC, 200V 2.2UF M 3A
C870	76503565	PLASTIC FILM, 800V 0.1UF H
C871	76092343	CERAMIC DISC, 2KV 680PF K
C873	76503045	PLASTIC FILM, 63V 0.22UF J
C874	76092337	CERAMIC DISC, 2KV 220PF K
C876	76503049	PLASTIC FILM, 63V 0.47UF J
C877	76092344	CERAMIC DISC, 2KV 820PF K
C879	76214102	CERAMIC DISC, 500V B 1000PF K
C880	76092339	CERAMIC DISC, 2KV 330PF K
C881	76092339	CERAMIC DISC, 2KV 330PF K
C884	76086916	ELECTROLYTIC, 160V 330UF M 3D
C885	76668102	ELECTROLYTIC, 35V 1000UF M 3A
C888	76503045	PLASTIC FILM, 63V 0.22UF J
C891	76073155	ELECTROLYTIC, 16V 1000UF M 3A
C892	76073155	ELECTROLYTIC, 16V 1000UF M 3A
C893	76073141	ELECTROLYTIC, 10V 1000UF M 3A
C898	76092730	CERAMIC CHIP, 16V B 0.1UF K
C901	76211102	CERAMIC DISC, 2KV B 1000PF K
C902	76794101	ELECTROLYTIC, 16V 100UF M
C903	76232103	CERAMIC DISC, 50V F 0.01UF Z
C904	76109471	CERAMIC CHIP, 50V B 470PF K
C906	76679220	ELECTROLYTIC, 250V 22UF M 3A
C907	76214101	CERAMIC DISC, 500V B 100PF K
C911	76211102	CERAMIC DISC, 2KV B 1000PF K
C912	76794101	ELECTROLYTIC, 16V 100UF M
C913	76232103	CERAMIC DISC, 50V F 0.01UF Z
C914	76109471	CERAMIC CHIP, 50V B 470PF K
C915	76679220	ELECTROLYTIC, 250V 22UF M 3A
C917	76214101	CERAMIC DISC, 500V B 100PF K
C921	76211102	CERAMIC DISC, 2KV B 1000PF K
C922	76794101	ELECTROLYTIC, 16V 100UF M
C923	76109471	CERAMIC CHIP, 50V B 470PF K
C924	76232103	CERAMIC DISC, 50V F 0.01UF Z
C925	76679220	ELECTROLYTIC, 250V 22UF M 3A
C926	76214101	CERAMIC DISC, 500V B 100PF K
C934	76092731	CERAMIC CHIP, 16V B 1UF K
C944	76092542	CERAMIC CHIP, 16V B 1UF K
C954	76092731	CERAMIC CHIP, 16V B 1UF K
C961	76763101	ELECTROLYTIC, 16V 100UF M
C962	76203100	ELECTORLYTIC, 16V 10UF M 7L 3A
C4430	76073034	ELECTROLYTIC, 16V 10UF M 3A
C7101	76797470	ELECTROLYTIC, 50V 47UF M
C7102	76109103	CERAMIC CHIP, 50V B 0.01UF K
C7103	76206479	ELECTROLYTIC, 50V 4.7UF M 7L 3A
C7104	76108330	CERAMIC CHIP, 50V SL 33PF J
C7105	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7106	76797470	ELECTROLYTIC, 50V 47UF M
C7107	76790470	ELECTROLYTIC, 160V 47UF M
C7108	76214472	CERAMIC DISC, 500V B 4700PF K
C7109	76214472	CERAMIC DISC, 500V B 4700PF K
C7110	76666470	ELECTORLYTIC, 16V 47UF M 3A
C7111	76666470	ELECTORLYTIC, 16V 47UF M 3A
C7112	76435560	CERAMIC DISC, 500V SL 56PF J
C7113	76790100	ELECTROLYTIC, 160V 10UF M
C7114	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7701	76503047	PLASTIC FILM, 63V 0.33UF J
C7704	76073053	ELECTROLYTIC, 25V 100UF M 3A
C7705	76073037	ELECTROLYTIC, 16V 47UF M 3A
C7706	76503047	PLASTIC FILM, 63V 0.33UF J
C7722	76105331	CERAMIC CHIP, 50V CH 330PF J
C7724	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7725	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7727	76105331	CERAMIC CHIP, 50V CH 330PF J
C7730	76105331	CERAMIC CHIP, 50V CH 330PF J
C7733	76105331	CERAMIC CHIP, 50V CH 330PF J
C7735	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7736	76073091	ELECTROLYTIC, 50V 220UF M 3A
C7738	76105331	CERAMIC CHIP, 50V CH 330PF J
C7741	76105331	CERAMIC CHIP, 50V CH 330PF J
C7750	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7751	76073089	ELECTROLYTIC, 50V 47UF M 3A
C7752	76073089	ELECTROLYTIC, 50V 47UF M 3A
C7753	76073093	ELECTROLYTIC, 50V 470UF M 3A
C7761	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7762	76073015	ELECTROLYTIC, 10V 47UF M 3A
C7765	76667220	ELECTROLYTIC, 25V 22UF M 3A
C7784	76667220	ELECTROLYTIC, 25V 22UF M 3A
C7785	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7786	76092730	CERAMIC CHIP, 16V B 0.1UF K
C7800	76666220	ELECTROLYTIC, 16V 22UF M 3A
CB01	24794470	ELECTROLYTIC, 16V 47UF M
CB51	24590103	PLASTIC FILM, 50V 0.01UF J
CB52	24794470	ELECTROLYTIC, 16V 47UF M
CB53	24503041	PLASTIC FILM , 63V 0.1UF J
CB54	24436221	CERAMIC DISC, 50V SL 220PF J
CB55	24797010	ELECTROLYTIC, 50V 1UF M
CB56	24794470	ELECTROLYTIC, 16V 47UF M
CB58	24794470	ELECTROLYTIC, 16V 47UF M
CB59	24590103	PLASTIC FILM, 50V 0.01UF J
CB60	24794100	ELECTROLYTIC, 16V 10UF M
CB61	24503041	PLASTIC FILM , 63V 0.1UF J
CB504	76794100	ELECTROLYTIC, 16V 10UF M
CB505	76590104	CERAMIC DISC, 50V 0.1UF J
CV14	76212102	CERAMIC DISC, 50V B 1000PF K
CV27	76762471	ELECTROLYTIC, 10V 470UF M
CV29	76763101	ELECTROLYTIC, 16V 100UF M
CV30	76232103	CERAMIC DISC, 50V F 0.01UF Z
CV38	76212102	CERAMIC DISC, 50V B 1000PF K
CV39	76212102	CERAMIC DISC, 50V B 1000PF K
⚠ Z450	76083014	CR-BLOCK, TPA5011AH

RESISTORS

R240	76367153	CARBON FILM, 1/6W 15K OHM G
R241	76367183	CARBON FILM, 1/6W 18K OHM G
R242	76367183	CARBON FILM, 1/6W 18K OHM G
R243	76367273	CARBON FILM, 1/6W 27K OHM G
R244	76366124	CARBON FILM, 1/6W 120K OHM J
R245	76366472	CARBON FILM, 1/6W 4.7K OHM J
R246	76366472	CARBON FILM, 1/6W 4.7K OHM J
R247	76366102	CARBON FILM, 1/6W 1K OHM J
R249	76366104	CARBON FILM, 1/6W 100K OHM J
R264	76366750	CARBON FILM, 1/6W 75 OHM J
R265	76366750	CARBON FILM, 1/6W 75 OHM J
R266	76366750	CARBON FILM, 1/6W 75 OHM J
R286	76366750	CARBON FILM, 1/6W 75 OHM J
R287	76366750	CARBON FILM, 1/6W 75 OHM J
R288	76366750	CARBON FILM, 1/6W 75 OHM J
R302	76366101	CARBON FILM, 1/6W 100 OHM J
R305	76322109	OXIDE METAL FILM, 1W 1 OHM J
R306	76011822	CHIP, 1/20W 8.2K OHM J
R307	76011101	CHIP, 1/20W 100 OHM J
R308	76011101	CHIP, 1/20W 100 OHM J
R311	76366563	CARBON FILM, 1/6W 56K OHM J
R312	76011123	CHIP, 1/20W 12K OHM J
R313	76011102	CHIP, 1/20W 1K OHM J

Location No.	Parts No.	Description
R314	76011473	CHIP, 1/20W 47K OHM J
R315	76011681	CHIP, 1/20W 680 OHM J
R321	76011472	CHIP, 1/20W 4.7K OHM J
R322	76011101	CHIP, 1/20W 100 OHM J
R325	76011472	CHIP, 1/20W 4.7K OHM J
R330	76000633	METAL FILM, 1/4W 10K OHM F
R331	76000633	METAL FILM, 1/4W 10K OHM F
R334	76011102	CHIP, 1/20W 1K OHM J
R335	76011102	CHIP, 1/20W 1K OHM J
R336	76011102	CHIP, 1/20W 1K OHM J
R337	76321129	OXIDE METAL FILM, 1/2W 1.2 OHM J
R338	76011153	CHIP, 1/2OW 15K OHM J
R340	76366103	CARBON FILM, 1/6W 10K OHM J
R341	76011183	CHIP, 1/20W 18K OHM J
R343	76011102	CHIP, 1/20W 1K OHM J
R344	76382151	OXIDE METAL FILM, 1W 150 OHM J
R345	76000445	CHIP JUMPER, 1608TYPE
R346	76382391	OXIDE METAL FILM, 1W 390 OHM J
R348	76011473	CHIP, 1/20W 47K OHM J
R349	76011392	CHIP, 1/20W 3.9K OHM J
R350	76011123	CHIP, 1/20W 12K OHM J
R355	76366103	CARBON FILM, 1/6W 10K OHM J
R360	76011562	CHIP, 1/20W 5.6K OHM J
R361	76011104	CHIP, 1/20W 100K OHM J
R362	76011473	CHIP, 1/20W 47K OHM J
R363	76011103	CHIP, 1/20W 10K OHM J
R364	76011331	CHIP, 1/20W 330 OHM J
R365	76011682	CHIP, 1/20W 6.8K OHM J
R366	76366222	CARBON FILM, 1/6W 2.2K OHM J
R367	76011392	CHIP, 1/20W 3.9K OHM J
R369	76366103	CARBON FILM, 1/6W 10K OHM J
R370	76366102	CARBON FILM, 1/6W 1K OHM J
R371	76011823	CHIP, 1/20W 82K OHM J
R372	76011332	CHIP, 1/20W 3.3K OHM J
R373	76011823	CHIP, 1/20W 82K OHM J
R374	76011104	CHIP, 1/20W 100K OHM J
R375	76011153	CHIP, 1/2OW 15K OHM J
R376	76011333	CHIP, 1/20W 33K OHM J
R378	76011103	CHIP, 1/20W 10K OHM J
R390	76382561	OXIDE METAL FILM, 1W 560 OHM J
R391	76382561	OXIDE METAL FILM, 1W 560 OHM J
R392	76382561	OXIDE METAL FILM, 1W 560 OHM J
R403	76553101	OXIDE METAL FILM, 1W 100 OHM J
R404	76011182	CHIP, 1/20W 1.8K OHM J
R405	76366101	CARBON FILM, 1/6W 100 OHM J
R406	76382682	OXIDE METAL FILM, 1W 6.8K OHM J
R407	76381100	OXIDE METAL FILM, 1/2W 10 OHM J
R409	76555220	OXIDE METAL FILM, 3W 22 OHM J
R410	76555220	OXIDE METAL FILM, 3W 22 OHM J
R411	76323229	OXIDE METAL FILM, 2W 2.2 OHM J
R412	76383153	OXIDE METAL FILM, 2W 15K OHM J
R413	76366101	CARBON FILM, 1/6W 100 OHM J
R414	76019259	FUSIBLE, 1/4W 27 OHM G
R415	76011102	CHIP, 1/20W 1K OHM J
R416	76383151	OXIDE METAL FILM, 2W 150 OHM J
R417	76366222	CARBON FILM, 1/6W 2.2K OHM J
R418	76011103	CHIP, 1/20W 10K OHM J
R419	76011103	CHIP, 1/20W 10K OHM J
R420	76366103	CARBON FILM, 1/6W 10K OHM J
R421	76366223	CARBON FILM, 1/6W 22K OHM J
R422	76011223	CHIP, 1/20W 22K OHM J
R423	76942102	CARBON COMPOSITION, 1/2W 1K OHM J
R424	76376104	CARBON FILM, 1/2W 100K OHM J
R425	76376104	CARBON FILM, 1/2W 100K OHM J
R426	76366101	CARBON FILM, 1/6W 100 OHM J
R427	76011101	CHIP, 1/20W 100 OHM J
R428	76377224	CARBON FILM, 1W 220K OHM J
R429	76942102	CARBON COMPOSITION, 1/2W 1K OHM J
R431	76383102	OXIDE METAL FILM, 2W 1K OHM J
R432	76376274	CARBON FILM, 1/2W 270K OHM J
R433	76376274	CARBON FILM, 1/2W 270K OHM J
R434	76376274	CARBON FILM, 1/2W 270K OHM J
R435	76366332	CARBON FILM, 1/6W 3.3K OHM J
R436	76366473	CARBON FILM, 1/6W 47K OHM J
R437	76011223	CHIP, 1/20W 22K OHM J
R438	76011102	CHIP, 1/20W 1K OHM J

Location No.	Parts No.	Description
R439	76011103	CHIP, 1/20W 10K OHM J
R440	76011103	CHIP, 1/20W 10K OHM J
R441	76533331	FUSIBLE, 2W 330 OHM J
R443	76310109	OXIDE METAL FILM, 1/2W 1 OHM J
R444	76322398	OXIDE METAL FILM, 1W 0.39 OHM J
R446	76011103	CHIP, 1/20W 10K OHM J
R447	76382473	OXIDE METAL FILM, 1W 47K OHM J
R448	76366562	CARBON FILM, 1/6W 5.6K OHM J
R449	76366152	CARBON FILM, 1/6W 1.5K OHM J
R466	76366433	CARBON FILM, 1/6W 43K OHM J
R467	76011221	CHIP, 1/20W 220 OHM J
R469	76011101	CHIP, 1/20W 100 OHM J
R470	76322478	OXIDE METAL FILM, 1W 0.47 OHM J
R471	76366224	CARBON FILM, 1/6W 220K OHM J
R472	76011101	CHIP, 1/20W 100 OHM J
R473	76011223	CHIP, 1/20W 22K OHM J
R474	76376393	CARBON FILM, 1/2W 39K OHM J
R475	76366101	CARBON FILM, 1/6W 100 OHM J
R476	76011471	CHIP, 1/20W 470 OHM J
⚠ R477	76998331	CHIP, 1/16W 330 OHM D
R478	76011102	CHIP, 1/20W 1K OHM J
R480	76011473	CHIP, 1/20W 47K OHM J
R481	76366103	CARBON FILM, 1/6W 10K OHM J
R482	76011103	CHIP, 1/20W 10K OHM J
R483	76000445	CHIP JUMPER, 1608TYPE
R485	76011681	CHIP, 1/20W 680 OHM J
R486	76011472	CHIP, 1/20W 4.7K OHM J
R487	76552271	OXIDE METAL FILM, 1/2W 270 OHM J
R488	76552151	OXIDE METAL FILM, 1/2W 150 OHM J
R489	76011102	CHIP, 1/20W 1K OHM J
R490	76552331	OXIDE METAL FILM, 1/2W 330 OHM J
R491	76011222	CHIP, 1/20W 2.2K OHM J
⚠ R492	76998102	CHIP, 1/16W 1K OHM
⚠ R493	76998391	CHIP, 1/16W 390 OHM
⚠ R494	76998471	CHIP, 1/16W 470 OHM
R495	76011333	CHIP, 1/20W 33K OHM J
R496	76011103	CHIP, 1/20W 10K OHM J
R497	76011100	CHIP, 1/20W 10 OHM J
R498	76011103	CHIP, 1/20W 10K OHM J
R499	76011102	CHIP, 1/20W 1K OHM J
R513	76366101	CARBON FILM, 1/6W 100 OHM J
R515	76366103	CARBON FILM, 1/6W 10K OHM J
R601	76011822	CHIP, 1/20W 8.2K OHM J
R602	76011822	CHIP, 1/20W 8.2K OHM J
R603	76011102	CHIP, 1/20W 1K OHM J
R604	76011102	CHIP, 1/20W 1K OHM J
R609	76011563	CHIP, 1/20W 56K OHM J
R610	76011273	CHIP, 1/20W 27K OHM J
R611	76011103	CHIP, 1/20W 10K OHM J
R612	76011222	CHIP, 1/20W 2.2K OHM J
R613	76011223	CHIP, 1/20W 22K OHM J
R614	76011103	CHIP, 1/20W 10K OHM J
R615	76011104	CHIP, 1/20W 100K OHM J
R616	76011822	CHIP, 1/20W 8.2K OHM J
R626	76011223	CHIP, 1/20W 22K OHM J
R627	76011223	CHIP, 1/20W 22K OHM J
R661	76011102	CHIP, 1/20W 1K OHM J
R662	76011333	CHIP, 1/20W 33K OHM J
R663	76011822	CHIP, 1/20W 8.2K OHM J
R665	76011223	CHIP, 1/20W 22K OHM J
R666	76011473	CHIP, 1/20W 47K OHM J
R667	76011223	CHIP, 1/20W 22K OHM J
R668	76011473	CHIP, 1/20W 47K OHM J
R671	76011102	CHIP, 1/20W 1K OHM J
R672	76011333	CHIP, 1/20W 33K OHM J
R673	76011822	CHIP, 1/20W 8.2K OHM J
R674	76011472	CHIP, 1/20W 4.7K OHM J
R676	76011104	CHIP, 1/20W 100K OHM J
R677	76011104	CHIP, 1/20W 100K OHM J
R681	76011222	CHIP, 1/20W 2.2K OHM J
R682	76011473	CHIP, 1/20W 47K OHM J
R683	76011223	CHIP, 1/20W 22K OHM J
R684	76011223	CHIP, 1/20W 22K OHM J
R687	76011103	CHIP, 1/20W 10K OHM J
R688	76011224	CHIP, 1/20W 220K OHM J
R693	76000445	CHIP JUMPER, 1608TYPE

Location No.		Parts No.	Description
R697		76553221	OXIDE METAL FILM, 1W 220 OHM J
R698		76011103	CHIP, 1/20W 10K OHM J
R699		76011103	CHIP, 1/20W 10K OHM J
R810	#1	76007061	CERAMIC COVERED, 2W 1.8 OHM K
	#2	76120001	CEMENT RES 141C 2.1W 1R8 K
	#3	76120001	CEMENT RES 141C 2.1W 1R8 K
	#4	76120001	CEMENT RES 141C 2.1W 1R8 K
R818		76011471	CHIP, 1/20W 470 OHM J
R819		76011103	CHIP, 1/20W 10K OHM J
R840		76552562	OXIDE METAL FILM, 1/2W 5.6K OHM J
R841		76011102	CHIP, 1/20W 1K OHM J
R842		76376563	CARB0N FILM, 1/2W 56K OHM J
R843		76376563	CARB0N FILM, 1/2W 56K OHM J
R844		76011103	CHIP, 1/20W 10K OHM J
R845		76366102	CARBON FILM, 1/6W 1K OHM J
R849		76011101	CHIP, 1/20W 100 OHM J
R854		76381150	OXIDE METAL FILM, 1/2W 15 OHM J
R860		76383473	OXIDE METAL FILM, 2W 47K OHM J
R862		76321689	OXIDE METAL FILM, 1/2W 6.8 OHM J
R864		76552102	OXIDE METAL FILM, 1/2W 1K OHM J
R865		76552390	OXIDE METAL FILM, 1/2W 39 OHM J
R866		76366472	CARBON FILM, 1/6W 4.7K OHM J
R867		76366223	CARBON FILM, 1/6W 22K OHM J
R868		76552470	OXIDE METAL FILM, 1/2W 47 OHM J
R870		76381151	OXIDE METAL FILM, 1/2W 150 OHM J
R871		76382680	OXIDE METAL FILM, 1W 68 OHM J
R873		76552100	OXIDE METAL FILM, 1/2W 10 OHM J
R874		76366150	CARBON FILM, 1/6W 15 OHM J
R881		76011102	CHIP, 1/20W 1K OHM J
R883		76381102	OXIDE METAL FILM, 1/2W 1K OHM J
R885		76366471	CARBON FILM, 1/6W 470 OHM J
R893		76011472	CHIP, 1/20W 4.7K OHM J
R894		76011103	CHIP, 1/20W 10K OHM J
⚠ R899		76010001	CARBON FILM, 1/2W 3.9M OHM J
R900		76000892	FUSIBLE, 1W 1.2 OHM J
R901		76366331	CARBON FILM, 1/6W 330 OHM J
R903		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R905		76872180	CHIP, 1/16W 18 OHM J
R906		76872271	CHIP, 1/16W 270 OHM J
R908		76872560	CHIP, 1/16W 56 OHM J
R909		76872270	CHIP, 1/16W 27 OHM J
R910		76322568	OXIDE METAL FILM, 1W 0.56 OHM J
R911		76366331	CARBON FILM, 1/6W 330 OHM J
R913		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R915		76872270	CHIP, 1/16W 27 OHM J
R916		76872271	CHIP, 1/16W 270 OHM J
R918		76872560	CHIP, 1/16W 56 OHM J
R919		76872180	CHIP, 1/16W 18 OHM J
R920		76366222	CARBON FILM, 1/6W 2.2K OHM J
R921		76366331	CARBON FILM, 1/6W 330 OHM J
R923		76552101	OXIDE METAL FILM, 1/2W 100 OHM J
R925		76872330	CHIP, 1/16W 33 OHM J
R926		76872271	CHIP, 1/16W 270 OHM J
R928		76872680	CHIP, 1/16W 68 OHM J
R929		76872180	CHIP, 1/16W 18 OHM J
R930		76366222	CARBON FILM, 1/6W 2.2K OHM J
R931		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R938		76366150	CARBON FILM, 1/6W 15 OHM J
R944		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R945		76366150	CARBON FILM, 1/6W 15 OHM J
R948		76366222	CARBON FILM, 1/6W 2.2K OHM J
R950		76366222	CARBON FILM, 1/6W 2.2K OHM J
R951		76568272	CERAMIC COVERED, 7W 2.7K OHM J
R958		76366150	CARBON FILM, 1/6W 15 OHM J
R961		76872182	CHIP, 1/16W 1.8K OHM J
R962		76872182	CHIP, 1/16W 1.8K OHM J
R963		76872100	CHIP, 1/16W 10 OHM J
R964		76872332	CHIP, 1/16W 3.3K OHM J
R965		76872101	CHIP, 1/16W 100 OHM J
R966		76872122	CHIP, 1/16W 1.2K OHM J
R967		76872122	CHIP, 1/16W 1.2K OHM J
R968		76366222	CARBON FILM, 1/6W 2.2K OHM J
R969		76872122	CHIP, 1/16W 1.2K OHM J
R970		76872122	CHIP, 1/16W 1.2K OHM J
R971		76872152	CHIP, 1/16W 1.5K OHM J
R978		76366222	CARBON FILM, 1/6W 2.2K OHM J

Location No.	Parts No.	Description
R987	76872101	CHIP, 1/16W 100 OHM J
R988	76366222	CARBON FILM, 1/6W 2.2K OHM J
R991	76366222	CARBON FILM, 1/6W 2.2K OHM J
R992	76366222	CARBON FILM, 1/6W 2.2K OHM J
R4430	76381150	OXIDE METAL FILM, 1/2W 15 OHM J
R4431	76366102	CARBON FILM, 1/6W 1K OHM J
R7102	76872681	CHIP, 1/16W 680 OHM J
R7103	76872102	CHIP, 1/16W 1K OHM J
R7104	76872102	CHIP, 1/16W 1K OHM J
R7105	76871221	CHIP, 1/8W 220 OHM J
R7106	76871221	CHIP, 1/8W 220 OHM J
R7107	76872101	CHIP, 1/16W 100 OHM J
R7108	76872332	CHIP, 1/16W 3.3K OHM J
R7109	76872333	CHIP, 1/16W 33K OHM J
R7110	76872273	CHIP, 1/16W 27K OHM J
R7111	76872333	CHIP, 1/16W 33K OHM J
R7112	76872151	CHIP, 1/16W 150 OHM J
R7113	76872751	CHIP, 1/16W 750 OHM J
R7114	76872681	CHIP, 1/16W 680 OHM J
R7115	76871471	CHIP, 1/8W 470 OHM J
R7116	76871471	CHIP, 1/8W 470 OHM J
R7117	76872101	CHIP, 1/16W 100 OHM J
R7118	76872101	CHIP, 1/16W 100 OHM J
R7119	76871100	CHIP, 1/8W 10 OHM J
R7120	76871100	CHIP, 1/8W 10 OHM J
R7121	76871100	CHIP, 1/8W 10 OHM J
R7122	76871100	CHIP, 1/8W 10 OHM J
R7123	76871100	CHIP, 1/8W 10 OHM J
R7124	76871100	CHIP, 1/8W 10 OHM J
R7125	76871100	CHIP, 1/8W 10 OHM J
R7126	76871100	CHIP, 1/8W 10 OHM J
R7127	76552331	OXIDE METAL FILM, 1/2W 330 OHM J
R7128	76872751	CHIP, 1/16W 750 OHM J
R7129	76872122	CHIP, 1/16W 1.2K OHM J
R7130	76872683	CHIP, 1/16W 68K OHM J
R7131	76872683	CHIP, 1/16W 68K OHM J
R7132	76872751	CHIP, 1/16W 750 OHM J
R7133	76872122	CHIP, 1/16W 1.2K OHM J
R7134	76872102	CHIP, 1/16W 1K OHM J
R7135	76553100	OXIDE METAL FILM, 1W 10 OHM J
R7136	76321229	OXIDE METAL FILM, 1/2W 2.2 OHM J
R7137	76553100	OXIDE METAL FILM, 1W 10 OHM J
R7138	76322229	OXIDE METAL FILM, 1W 2.2 OHM J
R7139	76554221	OXIDE METAL FILM, 2W 220 OHM J
R7140	76872220	CHIP, 1/16W 22 OHM J
R7141	76872220	CHIP, 1/16W 22 OHM J
R7701	76011392	CHIP, 1/20W 3.9K OHM J
R7702	76000445	CHIP JUMPER, 1608TYPE
R7707	76011472	CHIP, 1/20W 4.7K OHM J
R7708	76011472	CHIP, 1/20W 4.7K OHM J
R7710	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7711	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7712	76011472	CHIP, 1/20W 4.7K OHM J
R7713	76011472	CHIP, 1/20W 4.7K OHM J
R7715	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7716	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7717	76011472	CHIP, 1/20W 4.7K OHM J
R7718	76011472	CHIP, 1/20W 4.7K OHM J
R7720	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7721	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7722	76011472	CHIP, 1/20W 4.7K OHM J
R7723	76011472	CHIP, 1/20W 4.7K OHM J
R7725	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7726	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7727	76011472	CHIP, 1/20W 4.7K OHM J
R7728	76011472	CHIP, 1/20W 4.7K OHM J
R7730	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7731	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7732	76011472	CHIP, 1/20W 4.7K OHM J
R7733	76011472	CHIP, 1/20W 4.7K OHM J
R7735	76383221	OXIDE METAL FILM, 2W 220 OHM J
R7736	76339189	OXIDE METAL FILM, 2W 1.8 OHM J
R7743	76322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7744	76322338	OXIDE METAL FILM, 1W 0.33 OHM J
R7745	76011101	CHIP, 1/20W 100 OHM J
R7746	76011101	CHIP, 1/20W 100 OHM J

Location No.	Parts No.	Description
R7747	76011221	CHIP, 1/20W 220 OHM J
R7748	76011221	CHIP, 1/20W 220 OHM J
R7749	76011102	CHIP, 1/20W 1K OHM J
R7750	76011332	CHIP, 1/20W 3.3K OHM J
R7751	76011153	CHIP, 1/2OW 15K OHM J
R7752	76011822	CHIP, 1/20W 8.2K OHM J
R7753	76011101	CHIP, 1/20W 100 OHM J
R7754	76011333	CHIP, 1/20W 33K OHM J
R7755	76011153	CHIP, 1/2OW 15K OHM J
R7756	76011153	CHIP, 1/2OW 15K OHM J
R7757	76011681	CHIP, 1/20W 680 OHM J
R7758	76011332	CHIP, 1/20W 3.3K OHM J
R7760	76011682	CHIP, 1/20W 6.8K OHM J
R7761	76011123	CHIP, 1/20W 12K OHM J
R7762	76011682	CHIP, 1/20W 6.8K OHM J
R7763	76011123	CHIP, 1/20W 12K OHM J
R7765	76011103	CHIP, 1/20W 10K OHM J
R7766	76366103	CARBON FILM, 1/6W 10K OHM J
R7767	76011103	CHIP, 1/20W 10K OHM J
R7768	76011103	CHIP, 1/20W 10K OHM J
R7769	76011103	CHIP, 1/20W 10K OHM J
R7770	76011103	CHIP, 1/20W 10K OHM J
R7771	76011103	CHIP, 1/20W 10K OHM J
R7772	76011473	CHIP, 1/20W 47K OHM J
R7773	76011103	CHIP, 1/20W 10K OHM J
R7774	76011103	CHIP, 1/20W 10K OHM J
R7801	76383471	OXIDE METAL FILM, 2W 470 OHM J
R7802	76383681	OXIDE METAL FILM, 2W 680 OHM J
R7880	76011221	CHIP, 1/20W 220 OHM J
R7881	76011472	CHIP, 1/20W 4.7K OHM J
R7882	76011103	CHIP, 1/20W 10K OHM J
R7883	76011103	CHIP, 1/20W 10K OHM J
R7884	76011103	CHIP, 1/20W 10K OHM J
R7885	76366472	CARBON FILM, 1/6W 4.7K OHM J
R7886	76011104	CHIP, 1/20W 100K OHM J
R7887	76366103	CARBON FILM, 1/6W 10K OHM J
R7890	76011331	CHIP, 1/20W 330 OHM J
R7891	76011331	CHIP, 1/20W 330 OHM J
R7892	76366472	CARBON FILM, 1/6W 4.7K OHM J
R7893	76011472	CHIP, 1/20W 4.7K OHM J
R7910	76011221	CHIP, 1/20W 220 OHM J
R7911	76011221	CHIP, 1/20W 220 OHM J
R7912	76011101	CHIP, 1/20W 100 OHM J
R7913	76011101	CHIP, 1/20W 100 OHM J
R7931	76000445	CHIP JUMPER, 1608TYPE
R9501	76872101	CHIP, 1/16W 100 OHM J
R9503	76872122	CHIP, 1/16W 1.2K OHM J
R9504	76872122	CHIP, 1/16W 1.2K OHM J
R9607	76872101	CHIP, 1/16W 100 OHM J
R9608	76872122	CHIP, 1/16W 1.2K OHM J
R9609	76872122	CHIP, 1/16W 1.2K OHM J
RA71	76366273	CARBON FILM, 1/6W 27K OHM J
RA72	76366153	CARBON FILM, 1/6W 15K OHM J
RA73	76366822	CARBON FILM, 1/6W 8.2K OHM J
RA76	76366822	CARBON FILM, 1/6W 8.2K OHM J
RA77	76366153	CARBON FILM, 1/6W 15K OHM J
RA78	76366273	CARBON FILM, 1/6W 27K OHM J
RA79	76366823	CARBON FILM, 1/6W 82K OHM J
RB01	76366391	CARBON FILM, 1/6W 390 OHM J
RB04	76366473	CARBON FILM, 1/6W 47K OHM J
RB05	76366102	CARBON FILM, 1/6W 1K OHM J
RB15	24366471	CARBON FILM, 1/6W 470 OHM J
RB19	24366470	CARBON FILM, 1/6W 47 OHM J
RB51	24366224	CARBON FILM, 1/6W 220K OHM J
RB52	24366123	CARBON FILM, 1/6W 12K OHM J
RB53	24366123	CARBON FILM, 1/6W 12K OHM J
RB54	24366123	CARBON FILM, 1/6W 12K OHM J
RB55	24366224	CARBON FILM, 1/6W 220K OHM J
RB56	24366151	CARBON FILM, 1/6W 150 OHM J
RB57	24366103	CARBON FILM, 1/6W 10K OHM J
RB58	24366103	CARBON FILM, 1/6W 10K OHM J
RB59	24366122	CARBON FILM, 1/6W 1.2K OHM J
RB60	24366224	CARBON FILM, 1/6W 220K OHM J
RB61	24366100	CARBON FILM, 1/6W 10 OHM J
RB62	24366272	CARBON FILM, 1/6W 2.7K OHM J
RB63	24366271	CARBON FILM, 1/6W 270 OHM J

Location No.	Parts No.	Description
RB67	24366221	CARBON FILM, 1/6W 220 OHM J
RB69	24366272	CARBON FILM, 1/6W 2.7K OHM J
RB70	24366331	CARBON FILM, 1/6W 330 OHM J
RB504	76366104	CARBON FILM, 1/6W 100K OHM J
RB505	76366101	CARBON FILM, 1/6W 100 OHM J
RB506	76366390	CARBON FILM, 1/6W 39 OHM J
RB561	76366101	CARBON FILM, 1/6W 100 OHM J
RB562	76366104	CARBON FILM, 1/6W 100K OHM J
RB563	76366390	CARBON FILM, 1/6W 39 OHM J
RB567	76366223	CARBON FILM, 1/6W 22K OHM J
RV20	76366750	CARBON FILM, 1/6W 75 OHM J
RV21	76366750	CARBON FILM, 1/6W 75 OHM J
RV22	76366750	CARBON FILM, 1/6W 75 OHM J
RV23	76366101	CARBON FILM, 1/6W 100 OHM J
RV33	76366750	CARBON FILM, 1/6W 75 OHM J
RV34	76366750	CARBON FILM, 1/6W 75 OHM J
RV35	76366750	CARBON FILM, 1/6W 75 OHM J
RV36	76366750	CARBON FILM, 1/6W 75 OHM J
RV37	76366750	CARBON FILM, 1/6W 75 OHM J
RV40	76366750	CARBON FILM, 1/6W 75 OHM J
RV61	76366101	CARBON FILM, 1/6W 100 OHM J
RV85	76366471	CARBON FILM, 1/6W 470 OHM J
RV86	76366471	CARBON FILM, 1/6W 470 OHM J
RV89	76366680	CARBON FILM, 1/6W 68 OHM J
GJ102	76000445	CHIP JUMPER, 1608TYPE
GJ105	76000445	CHIP JUMPER, 1608TYPE
GJ107	76000445	CHIP JUMPER, 1608TYPE
GJ911	76000445	CHIP JUMPER, 1608TYPE
GR31	76000445	CHIP JUMPER, 1608TYPE
GR32	76000445	CHIP JUMPER, 1608TYPE
GR103	76000445	CHIP JUMPER, 1608TYPE
GR601	76000445	CHIP JUMPER, 1608TYPE
COILS & TRANSFORMERS		
L302	23248400	COIL, CHOKE, TLN3299D
L303	23248400	COIL, CHOKE, TLN3299D
L304	23103302	FERRITE CHOKE, TEM2011AH
L305	23103307	FERRITE CHOKE, TEM2014AA
L310	23289028	COIL, PEAKING, TRF4101AT
L401	23289009	COIL, PEAKING, TRF4560AF
⚠ L402	23248455	COIL, CHOKE, TLN3534AH
L403	23103302	FERRITE CHOKE, TEM2011AH
L406	23248413	COIL, CHOKE, TLN3351AD
L407	23103307	FERRITE CHOKE, TEM2014AA
L408	23103307	FERRITE CHOKE, TEM2014AA
⚠ L441	23233136	COIL, LINEARITY, TLN2222AH
⚠ L462	23231431	COIL, DEFLECTION YOKE, TDY707RD
⚠ L463	23231431	COIL, DEFLECTION YOKE, TDY707RD
⚠ L464	23231431	COIL, DEFLECTION YOKE, TDY707RD
L472	23102564	COIL, CPM29.1VM6T, MAG-1136
L473	23102564	COIL, CPM29.1VM6T, MAG-1136
L474	23102564	COIL, CPM29.1VM6T, MAG-1136
L490	23289981	COIL, PEAKING, TRF4330AZ
L840	23289025	COIL, PEAKING, TRF4330AT
L841	23103304	FERRITE CHOKE, TEM2011AA
L850	23103304	FERRITE CHOKE, TEM2011AA
L851	23103304	FERRITE CHOKE, TEM2011AA
L852	23103304	FERRITE CHOKE, TEM2011AA
L854	23103304	FERRITE CHOKE, TEM2011AA
L861	23103304	FERRITE CHOKE, TEM2011AA
L862	23103304	FERRITE CHOKE, TEM2011AA
L864	23103304	FERRITE CHOKE, TEM2011AA
L880	23103304	FERRITE CHOKE, TEM2011AA
L881	23103304	FERRITE CHOKE, TEM2011AA
L885	23248400	COIL, CHOKE, TLN3299D
L886	23103304	FERRITE CHOKE, TEM2011AA
L887	23103304	FERRITE CHOKE, TEM2011AA
L888	23248446	COIL, CHOKE, TLN3462AH
L891	23103304	FERRITE CHOKE, TEM2011AA
L892	23103304	FERRITE CHOKE, TEM2011AA
L893	23103304	FERRITE CHOKE, TEM2011AA
L894	23248432	COIL, CHOKE, TLN3499AH
L895	23248432	COIL, CHOKE, TLN3499AH
L896	23248432	COIL, CHOKE, TLN3499AH
L902	23289993	COIL, PEAKING, TRF41R5AF
L904	23289989	COIL, PEAKING, TRF4120AF

Location No.	Parts No.	Description
L905	23289014	COIL, PEAKING, TRF46R8AF
L911	23289996	COIL, PEAKING, TRF4220AF
L913	23289993	COIL, PEAKING, TRF41R5AF
L915	23289014	COIL, PEAKING, TRF46R8AF
L916	23289989	COIL, PEAKING, TRF4120AF
L923	23289993	COIL, PEAKING, TRF41R5AF
L924	23289989	COIL, PEAKING, TRF4120AF
L925	23289014	COIL, PEAKING, TRF46R8AF
L7101	23289022	COIL, PEAKING, TRF4100AT
L7102	23103304	FERRITE CHOKE, TEM2011AA
L7103	23103304	FERRITE CHOKE, TEM2011AA
L7104	23103323	FERRITE CORE, HC5-035
L7710	23248400	COIL, CHOKE, TLN3299D
L7711	23248400	COIL, CHOKE, TLN3299D
LB51	23237987	COIL, PEAKING, TRF4100AC
LV13	23289985	COIL, PEAKING, TRF4100AF
LV20	23221156	COIL, PEAKING, TRF4560AJ
LV36	23289009	COIL, PEAKING, TRF4560AF
LV37	23289009	COIL, PEAKING, TRF4560AF
T400	23224401	TRANSFORMER, FOCUS, TLN2220AH
T401	23224396	TRANSFORMER, TLN1080AH
T461A	23192972	ANODE CAP ASSY, TCC5609AT
T461Z	23236941	TRANSFORMER, HORIZ OUTPUT, SERVICE, TFB3094ZD
⚠ T801	23211836	COIL, LINE FILTER, TRF3197AH
⚠ T840	23217790	TRANSFORMER, CONVERTER TPW3425BH
⚠ T862	23217669	TRANSFORMER, CONVERTER TPW3549AS
T865	23224392	TRANSFORMER, PULSE TLN2229AH
Z801	23103840	FERRITE CORE, TFE1013
ZV60	23103778	FERRITE CORE, TFE1008
SEMICONDUCTORS		
Q241	23205342	TRANSISTOR, 2SC2482(F)
Q301	23085526	IC, LA7833-S-E
Q302	23085309	IC, TA1317ANG
Q305	23205346	TRANSISTOR, KTA2014Y/P
Q306	23085872	IC, OPE-AMP 14PIN DIP TA75902PG(5,J)
Q370	23205347	TRANSISTOR, KTC4075Y/P
Q371	23205346	TRANSISTOR, KTA2014Y/P
Q372	23205347	TRANSISTOR, KTC4075Y/P
Q400	23205370	TRANSISTOR, 2SC4686A(Q)
Q402	23205416	TRANSISTOR, FET, 2SK2962(F)
Q404	23205405	TRANSISTOR, 2SC5859(FA,Q)
Q405	23205346	TRANSISTOR, KTA2014Y/P
Q406	23205347	TRANSISTOR, KTC4075Y/P
⚠ Q408	23205346	TRANSISTOR, KTA2014Y/P
Q409	23205347	TRANSISTOR, KTC4075Y/P
Q410	23205347	TRANSISTOR, KTC4075Y/P
Q411	23205347	TRANSISTOR, KTC4075Y/P
Q420	23205342	TRANSISTOR, 2SC2482(F)
Q425	23205350	TRANSISTOR, FET, 2SK2920(Q)
Q428	23205347	TRANSISTOR, KTC4075Y/P
Q470	23205516	TRANSISTOR, 2SA1320(F)
Q471	23205347	TRANSISTOR, KTC4075Y/P
Q472	23205347	TRANSISTOR, KTC4075Y/P
Q473	23205346	TRANSISTOR, KTA2014Y/P
Q601	23009603	IC, AN7580
Q612	23205346	TRANSISTOR, KTA2014Y/P
Q613	23205347	TRANSISTOR, KTC4075Y/P
Q614	23205327	TRANSISTOR, RN1406(F)
Q661	23205424	TRANSISTOR, KTC2875B/P
Q662	23205424	TRANSISTOR, KTC2875B/P
Q663	23085575	IC, OP AMP, BA4558
Q664	23205325	TRANSISTOR, RN2404(F)
Q681	23205424	TRANSISTOR, KTC2875B/P
Q682	23205424	TRANSISTOR, KTC2875B/P
Q711	23205269	TRANSISTOR, VCBO-160V IC-1.5A 2SA2005
Q712	23205270	TRANSISTOR, VCBO 160V 1.5A 2SC5511
Q751	23135074	IC, STK394-250A
Q752	23135074	IC, STK394-250A
Q765	23205347	TRANSISTOR, KTC4075Y/P
Q766	23205347	TRANSISTOR, KTC4075Y/P
Q767	23205347	TRANSISTOR, KTC4075Y/P
Q768	23205347	TRANSISTOR, KTC4075Y/P
Q769	23085560	IC, TA75S393F(F)
Q782	23085531	IC, NJM79M05FA
Q784	23085424	IC, KIA7805API-U/P

Location No.	Parts No.	Description
Q785	23085596	IC, PST994D
Q794	23085560	IC, TA75S393F(F)
Q795	23085691	IC, TC4066BP(N,F)
Q796	23205347	TRANSISTOR, KTC4075Y/P
Q801	23135066	IC, STRZ4479
Q840	23085559	IC, MIP280
⚠ Q841	23085431	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q842	23085431	IC, PHOTO COUPLER, PS2581L1(D)
Q843	23205347	TRANSISTOR, KTC4075Y/P
Q844	23205347	TRANSISTOR, KTC4075Y/P
⚠ Q862	23085431	IC, PHOTO COUPLER, PS2581L1(D)
⚠ Q881	23085524	IC, SE116N, LF4
Q894	23205347	TRANSISTOR, KTC4075Y/P
Q901	23205412	TRANSISTOR, 2SC3942
Q902	23205415	TRANSISTOR, 2SC3950E
Q911	23205412	TRANSISTOR, 2SC3942
Q912	23205415	TRANSISTOR, 2SC3950E
Q913	23205357	TRANSISTOR, KTA1504S Y/P
Q921	23205412	TRANSISTOR, 2SC3942
Q922	23205415	TRANSISTOR, 2SC3950E
Q961	23205358	TRANSISTOR, KTC3875S Y/P
Q962	23205357	TRANSISTOR, KTA1504S Y/P
Q973	23205357	TRANSISTOR, KTA1504S Y/P
Q4430	23205444	TRANSISTOR, 2SC2236-Y(F)
Q7101	23205358	TRANSISTOR, KTC3875S Y/P
Q7102	23205358	TRANSISTOR, KTC3875S Y/P
Q7103	23085635	IC, 2SC3437-Y(TE85L,F)
Q7104	23205312	TRANSISTOR, 2SC1815-GR(F)
Q7105	23205358	TRANSISTOR, KTC3875S Y/P
Q7106	23205358	TRANSISTOR, KTC3875S Y/P
Q7107	23205357	TRANSISTOR, KTA1504S Y/P
Q7108	23205358	TRANSISTOR, KTC3875S Y/P
Q7109	23205357	TRANSISTOR, KTA1504S Y/P
Q7761	23205346	TRANSISTOR, KTA2014Y/P
Q7762	23205347	TRANSISTOR, KTC4075Y/P
Q7763	23205347	TRANSISTOR, KTC4075Y/P
Q7764	23205346	TRANSISTOR, KTA2014Y/P
QB01	23205499	TRANSISTOR, KTC3198 Y/P
QB51	23319808	IC, M5218AP
QB52	23314965	TRANSISTOR, KTC3198 Y
QB53	23314962	TRANSISTOR, KTA1266 Y
QB502	23205307	TRANSISTOR, 2SA562TM-Y(F)
QB508	23205307	TRANSISTOR, 2SA562TM-Y(F)
QB509	23205337	TRANSISTOR, 2SC2878-A(TEM)
QV48	23205499	TRANSISTOR, KTC3198 Y/P
D301	23357755	DIODE, ZENER, MA8075-H
D302	23357366	DIODE, FR105-B5
D303	23357872	DIODE, ZENER, MTZJ15C
D304	23357917	DIODE, SC570A
D305	23357365	DIODE, 1N4004A-B5
D306	23357365	DIODE, 1N4004A-B5
D327	23357861	DIODE, ZENER, MTZJ11A
D333	23357861	DIODE, ZENER, MTZJ11A
D334	23357861	DIODE, ZENER, MTZJ11A
D336	23357745	DIODE, ZENER, MA8056-M
D337	23357745	DIODE, ZENER, MA8056-M
D365	23357755	DIODE, ZENER, MA8075-H
D370	23357703	DIODE, 1SS355
D401	23357510	DIODE, AG01
D402	23357366	DIODE, FR105-B5
D404	23357705	DIODE, ERC06-15
D406	23357366	DIODE, FR105-B5
D411	23357784	DIODE, ZENER, MA8180-M
D412	23357694	DIODE, RP1H
D413	23357694	DIODE, RP1H
D414	23357366	DIODE, FR105-B5
D415	23357366	DIODE, FR105-B5
D418	23357901	DIODE, ZENER, MTZJ33C
D419	23357703	DIODE, 1SS355
D420	23357697	DIODE, 1SS133
D421	23357366	DIODE, FR105-B5
D425	23357366	DIODE, FR105-B5
D426	23357784	DIODE, ZENER, MA8180-M
D450	23357365	DIODE, 1N4004A-B5
D461	23357701	DIODE, FMQ-3GU
D470	23357770	DIODE, ZENER, MA8120-L

Location No.	Parts No.	Description
! D490	23357748	DIODE, ZENER, MA8062-M
D491	23357703	DIODE, 1SS355
D492	23357765	DIODE, ZENER, MA8100-M
D505	23357893	DIODE, ZENER, MTZJ27C
D601	23357703	DIODE, 1SS355
D602	23357703	DIODE, 1SS355
D603	23357703	DIODE, 1SS355
D604	23357703	DIODE, 1SS355
D605	23357703	DIODE, 1SS355
D606	23357703	DIODE, 1SS355
D607	23357703	DIODE, 1SS355
D608	23357703	DIODE, 1SS355
D609	23357703	DIODE, 1SS355
D611	23357703	DIODE, 1SS355
D612	23357703	DIODE, 1SS355
D613	23357703	DIODE, 1SS355
D614	23357703	DIODE, 1SS355
D615	23357703	DIODE, 1SS355
D616	23357703	DIODE, 1SS355
D617	23357703	DIODE, 1SS355
D628	23357771	DIODE, ZENER, MA8120-M
D751	23357104	DIODE, 1SS244
D752	23357104	DIODE, 1SS244
D801	23357712	DIODE, D5SB60, 4009 F05
D840	23362046	DIODE, LN1WBA60 4101
D841	23357746	DIODE, ZENER, MA8056-H
D842	23357738	DIODE, ZENER, MA8047-L
D843	23357366	DIODE, FR105-B5
D844	23357745	DIODE, ZENER, MA8056-M
D845	23357703	DIODE, 1SS355
D846	23357684	DIODE, ZENER, RD3.0ESA B2
D847	23357684	DIODE, ZENER, RD3.0ESA B2
D848	23357703	DIODE, 1SS355
D851	23362051	DIODE, D4SBL20U 4100
D852	23357860	DIODE, RL2Z
D853	23357860	DIODE, RL2Z
D854	23357366	DIODE, FR105-B5
D862	23357366	DIODE, FR105-B5
D864	23357366	DIODE, FR105-B5
D873	23357893	DIODE, ZENER, MTZJ27C
D875	23357852	DIODE, ZENER, MTZJ9.1C
D876	23357905	DIODE, ZENER, MTZJ36C
D878	23357850	DIODE, ZENER, MTZJ9.1A
D879	23357893	DIODE, ZENER, MTZJ27C
⚠ D880	23357828	DIODE, ZENER, MTZJ4.3B
D881	23357703	DIODE, 1SS355
D883	23357105	DIODE, RL2
D884	23357105	DIODE, RL2
D885	23362049	DIODE, D4SBS4 4100
D891	23362136	DIODE, YG801C04RF119
D892	23357408	DIODE, FMX-12S(023-108)
D893	23357408	DIODE, FMX-12S(023-108)
D894	23357703	DIODE, 1SS355
D895	23357748	DIODE, ZENER, MA8062-M
⚠ D899	76019485	VARISTOR, TNR10V431K
D901	23357697	DIODE, 1SS133
D906	23357104	DIODE, 1SS244
D907	23357104	DIODE, 1SS244
D908	23357104	DIODE, 1SS244
D909	23357104	DIODE, 1SS244
D912	23357697	DIODE, 1SS133
D913	23357496	DIODE, 1S1834(Q)
D916	23357104	DIODE, 1SS244
D917	23357104	DIODE, 1SS244
D918	23357104	DIODE, 1SS244
D919	23357104	DIODE, 1SS244
D921	23357697	DIODE, 1SS133
D926	23357104	DIODE, 1SS244
D927	23357104	DIODE, 1SS244
D928	23357104	DIODE, 1SS244
D929	23357104	DIODE, 1SS244
D936	23357496	DIODE, 1S1834(Q)
D940	23357697	DIODE, 1SS133
D941	23357697	DIODE, 1SS133
D942	23357697	DIODE, 1SS133
D943	23357697	DIODE, 1SS133

Location No.	Parts No.	Description
D944	23357697	DIODE, 1SS133
D945	23357697	DIODE, 1SS133
D962	23357748	DIODE, ZENER, MA8062-M
D967	23357496	DIODE, 1S1834(Q)
D4430	23357365	DIODE, 1N4004A-B5
D4431	23357767	DIODE, ZENER, MA8110-L
D7101	23357697	DIODE, 1SS133
D7102	23357697	DIODE, 1SS133
D7730	23357647	DIODE, ZENER, RD6.2ESA B2
D7731	23357647	DIODE, ZENER, RD6.2ESA B2
D7760	23357703	DIODE, 1SS355
D7761	23357629	DIODE, ZENER, RD8.2ESA B2
D7762	23357629	DIODE, ZENER, RD8.2ESA B2
D7763	23357703	DIODE, 1SS355
D7764	23357703	DIODE, 1SS355
D7766	23357703	DIODE, 1SS355
D7790	23357703	DIODE, 1SS355
D7791	23357703	DIODE, 1SS355
D7792	23357703	DIODE, 1SS355
D7793	23357759	DIODE, ZENER, MA8082-M
D7806	23357703	DIODE, 1SS355
DB01	23358606	DIODE, LED RED, SLR-56VC3FPQ
DB03	23358522	DIODE, LED, SIR-56SB3F
DB51	23358573	PHOTO DIODE, PIN 940NM HPI-2FER4
DB52	23118859	DIODE, 1SS133
DB54	23118859	DIODE, 1SS133
DB55	23118859	DIODE, 1SS133
DB56	23118859	DIODE, 1SS133
DB501	23357697	DIODE, 1SS133
DB504	23357697	DIODE, 1SS133
MISCELLANEOUS		
A510	23030815	SCREW, WOOD, PTD #6 X 3/4
B231	23738088	SCREW, BTBW3X12ECO
B233	23738085	SCREW, BTB4X12 ECO
BB10	23713729	SOCKET, B-B 8P 2.5MM
BB11	23713729	SOCKET, B-B 8P 2.5MM
BB20	23713729	SOCKET, B-B 8P 2.5MM
BB21	23713729	SOCKET, B-B 8P 2.5MM
BB51A	23965241	TAPE, CC #12 10MM L30M
BB60	23713014	PLUG, B-B 16P 1.5
BB70	23713810	PLUG , TAC-A46P-B1
BB100	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
BB200	23368627	CONNECTOR, BRIDGE B-B 8P 2.5JST 08TM-2.5FJ-E
⚠ F470	23144389	FUSE, AXIAL 125V 1.6A
⚠ F801	23144319	FUSE, CARTRIDGE, 125V 8A, 5.2X20
F801A	23165433	FUSE HOLDER, 5.2
F801B	23165433	FUSE HOLDER, 5.2
⚠ F840	23144704	FUSE, AXIAL 125V 200MA
⚠ F850	23144712	FUSE, AXIAL 125V 3.0A
⚠ F851	23144714	FUSE, AXIAL 125V 4.0A
⚠ F852	23144714	FUSE, AXIAL 125V 4.0A
⚠ F860	23144392	FUSE, AXIAL 125V 3.15A
⚠ F885	23144715	FUSE, AXIAL 125V 5.0A
⚠ F891	23144714	FUSE, AXIAL 125V 4.0A
⚠ F892	23144710	FUSE, AXIAL 125V 2.0A
H002	23148378	IF MODULE, US BUFFER 6M TRAP, MVUS51A
MF01	23389291	CABLE, FFC P1.25-16-200
MF03	23389290	CABLE, FFC P1.25-29-70
P101	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P102	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P404	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P710	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P711	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P712	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
⚠ P800	23713702	PLUG, 2P 11.88MM W VT
⚠ P801	23372209	POWER CORD, U/C FL 125V7A CMC042P JST
P880A	23713759	PLUG, 8P 2.5MM G, B8B-EH-F1-TV4
P880B	23713759	PLUG, 8P 2.5MM G, B8B-EH-F1-TV4
P913	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P915A	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P915B	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P917	23713760	PLUG, NP 2.5MM G, B9B-EH-F1A
P918	23713755	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4
P919	23713754	PLUG, 3P 2.5MM G, B3B-EH-F1-TV4
PB22	23368578	PLUG, 4P 2.5MM G, B4B-EH-F1-TV4

Location No.		Parts No.	Description
PB51		23368577	PLUG, 3P 2.5MM G, B3B-EH-F1-TV4
PB501		23365772	JACK, EARPHONE, HSJ1406-01-020
PB502		23365772	JACK, EARPHONE, HSJ1406-01-020
PB503		23713776	PLUG, 3P 2.5MM W, S3B-EH
PV01		23023311	JACK, PIN 2S6P, LAP5030-0111GC
PV02		23023205	JACK, PIN 10P SMK KARI2
PV03		23023211	JACK, PIN 7P SMK KARI04
PV05		23023184	JACK, 1S3P, LAP5100-1502F
PV60		23713761	PLUG, NP 2.5MM G, B10B-EH-F1A
SA01		23344505	SWITCH, PUSH 1C1P
SA02		23344505	SWITCH, PUSH 1C1P
SA03		23344505	SWITCH, PUSH 1C1P
SA04		23344505	SWITCH, PUSH 1C1P
SA05		23344505	SWITCH, PUSH 1C1P
SA06		23344505	SWITCH, PUSH 1C1P
SA07		23344505	SWITCH, PUSH 1C1P
SA09		23344505	SWITCH, PUSH 1C1P
⚠ SR81		23146590	RELAY, DLS5D1-O(M)0.25W
⚠ SR82		23146584	RELAY, DC12V, TV5, DG-3
⚠ V901A		23903180	SOCKET, ISHM62S-WE ICE
V901R	#1	23078357	OTHER, COUPLING R
	#2	23447326	COUPLING, R
	#3	23447981	COUPLING, RS
	#4	23447328	COUPLING, R
⚠ V902A		23903180	SOCKET, ISHM62S-WE ICE
V902G	#1	23078358	OTHER, COUPLING G
	#2	23447324	COUPLING, G
	#3	23447982	COUPLING, GS
	#4	23447324	COUPLING, G
⚠ V903A		23903180	SOCKET, ISHM62S-WE ICE
V903B	#1	23078359	OTHER, COUPLING B
	#2	23447327	COUPLING, B
	#3	23447983	COUPLING, BS
	#4	23447329	COUPLING, B
W661		23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
		23151232	SPEAKER, SPK1235, 160X160 65HZ 8 OHM
W662		23351242	SPEAKER, 160X160 8-OHM 20W SPK-1424AW
		23151232	SPEAKER, SPK1235, 160X160 65HZ 8 OHM
Z101		23103840	FERRITE CORE, TFE1013
Z401		23140203	SPARK GAP, 2.0-3.0KV C-010, AG20PC152F-L3N
⚠ Z410		23110857	FOCUS PACK, TPA6030
Z450A		23507612	CABLE, ANODE, 400LD FBT-C

PC BOARD ASSEMBLIES

✻ E021Z		23764269	PC BOARD ASSY, BACK/AV PU PD1735E1
✻ E022Z		23764270	PC BOARD ASSY, FRONT-CON PU PD1735E2
✻ E023Z		23764271	PC BOARD ASSY, FRONT-IN PU PD1735E3
✻ E024Z		23764272	PC BOARD ASSY, REMOTE PU PD1735E4
✻ E031Z		23764273	PC BOARD ASSY, CRT/SVM/R PU PD1733G1
✻ E032Z		23764274	PC BOARD ASSY, CRT/SVM/G PU PD1733G2
✻ E033Z		23764275	PC BOARD ASSY, CRT/SVM/B PU PD1733G3
✻ E034Z		23764276	PC BOARD ASSY, SVM/DIV PU PD1733G4
✻ E045Z		23788823	PC BOARD ASSY, IR BLASTER PU PD1289
✻ U001		23148433	SCAN CONVERTER MODUL, MHSU12
✻ U401		23764404	PC BOARD ASSY, DEFPOWER PU PD2201A
✻ U601		23764268	PC BOARD ASSY, IF/AUDIO PU PD1731D2
✻ U711		23764267	PC BOARD ASSY, CONVER PU PD1731D1
✻ US01		23764160	PC BOARD ASSY, SPK/CAPA PU PD2065B
✻ UV02		23148418	SCAN CONVERTER MODULE, 05HDMI-01A-G MHDM01A

ACCESSORIES

A701	#1	23067099	CARTON, CARTON
	#2	23067100	CARTON, CARTON
	#3	23015197	CARTON, CARTON
	#4	23064558	CARTON, CARTON
A703	#1	23946479	PACKING, TOP PACKING
	#2	23946481	PACKING, TOP PACKING
	#3	23946500	PACKING, TOP
	#4	23946500	PACKING, TOP
A708	#1	23946478	PACKING, BOTTOM PACKING
	#2	23946480	PACKING, BOTTOM PACKING
	#3	23946499	PACKING, BOTTOM
	#4	23946499	PACKING, BOTTOM
A709	#1	23946483	PACKING, BOTTOM TRAY
	#2	23946187	PACKING, BASE TRAY
	#3	23946211	PACKING, BASE TRAY
	#4	23946211	PACKING, BASE TRAY
⚠ K912		23306626	REMOCON HAND UNIT IR, MTVUSA CT-90232
K913		23306614	REMOCON HAND UNIT
KB01		23000852	REMOCON RECEIVER, PIC-37043TE2
⚠ Y101	#1	23566643	OWNERS MANUAL, ENGLISH/FRENCH
⚠	#2	23566643	OWNERS MANUAL, ENGLISH/FRENCH
⚠	#3	23566732	OWNERS MANUAL, ENGLISH
⚠	#4	23566643	OWNERS MANUAL, ENGLISH/FRENCH

CABINET PARTS

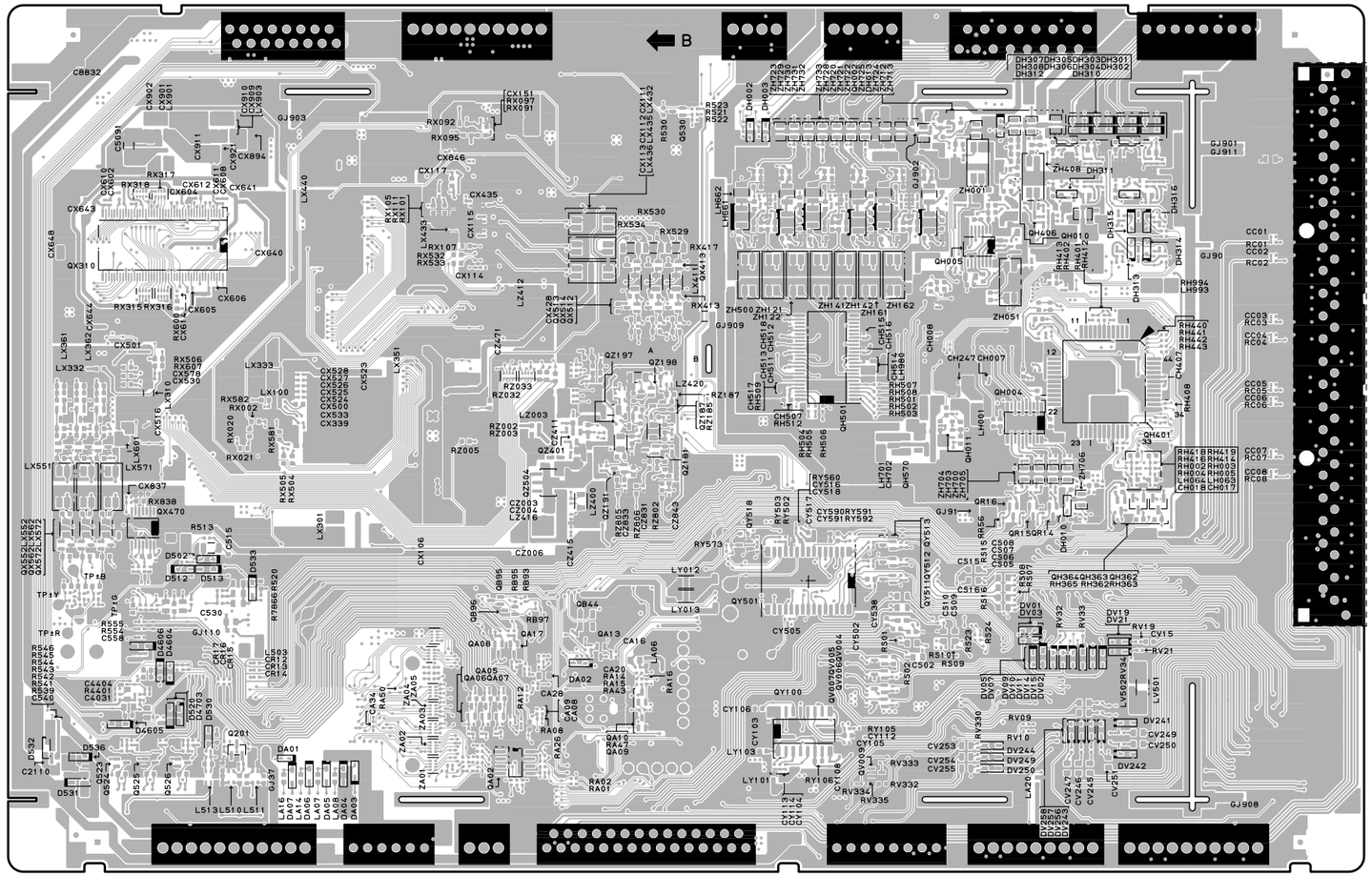
⚠ A001	#1	23429055	CABINET, WOOD
⚠	#2	23429091	CABINET, WOOD
⚠	#3	23429125	CABINET, WOOD CABINET SHIP
⚠	#4	23429125	CABINET, WOOD CABINET SHIP
A102	#1	23527268	GRILLE, SPEAKER GRILLE 51 REG
	#2	23527269	GRILLE, SPEAKER GRILLE 57 REG
	#3	23527279	GRILLE, SPK GRILLE ASSY
	#4	23527279	GRILLE, SPK GRILLE ASSY
A160		23469228	CASTER, TP50H60
⚠ A201	#1	23530779	COVER, BEZEL
⚠	#2	23532728	COVER, BEZEL ASSEY
⚠	#3	23530796	COVER, BEZEL
⚠	#4	23530796	COVER, BEZEL
A202		23450649	PANEL, CONTROL ASSY
A213		23428187	DOOR
A215		23929911	PIECE, SNAP-IN GEAR DAMPER CONNON
A222		23929910	PIECE, FILTER
A223		23445705	BUTTON, POWER BUTTON
A268	#1	23530772	COVER, FRONT COVER
	#2	23530770	COVER, FRONT COVER
	#3	23530770	COVER, FRONT COVER
	#4	23530770	COVER, FRONT COVER
A329	#1	23433231	DECORATIVE, PIECE
	#2	23433230	DECORATIVE, PIECE
	#3	23433233	DECORATIVE, PIECE
	#4	23433233	DECORATIVE, PIECE
A331	#1	23929897	PIECE, POLE BOTTOM LEFT
	#2	23929899	PIECE, POLE BOTTOM LEFT
	#3	23929899	PIECE, POLE BOTTOM LEFT
	#4	23929899	PIECE, POLE BOTTOM LEFT
A332	#1	23929898	PIECE, POLE BOTTOM RIGHT
	#2	23929900	PIECE, POLE BOTTOM RIGHT
	#3	23929900	PIECE, POLE BOTTOM RIGHT
	#4	23929900	PIECE, POLE BOTTOM RIGHT
⚠ A401	#1	23530781	COVER, BACK COVER
⚠	#3	23532525	COVER, BACK COVER
⚠	#4	23532525	COVER, BACK COVER
⚠ A411	#2	23532757	COVER, BACK COVER
⚠ A421		23530812	COVER, REAR BOARD
⚠ A424		23429059	CABINET, BACK BOARD
A721	#1	23943628	PLYETHLENE COVERING
	#2	23943628	PLYETHLENE COVERING
	#3	23943033	PLYETHLENE COVERING
	#4	23943033	PLYETHLENE COVERING
E918	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E929		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
E948	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E959		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
E978	#1	23737008	BOLT
	#2	23737007	BOLT
	#3	23737007	BOLT
	#4	23737007	BOLT
E989		23969684	TAPE, GLASS CLOTH, W/ADHESIVE W=90 T=0.18
K501	#1	23311088	SCREEN, 51KP LENTICULAR SHEET
	#2	23311128	SCREEN, 57KQ LENTICULAR SHEET
	#3	23311131	SCREEN, 65KQ LENTICULAR SHEET
	#4	23311131	SCREEN, 65KQ LENTICULAR SHEET
K502	#1	23311016	SCREEN, 51KN FRESNEL SHEET SCREEN51KN-F
	#2	23311014	SCREEN, 57KN FRESNEL SHEET SCREEN57KN-F
	#3	23311010	SCREEN, 65KN FRESNEL SHEET SCREEN65KN-F

Location No.		Parts No.	Description
	#4	23311010	SCREEN, 65KN FRESNEL SHEET SCREEN65KN-F
K503	#1	23311065	SCREEN, PROTECTOR 51KN SCR-PRO51KN
	#2	23311038	SCREEN, PROTECTOR 57KN SCR-PRO57KN
	#3	23311962	SCREEN, PROTECTOR 65KM SCR-PRO65KM
	#4	23311962	SCREEN, PROTECTOR 65KM SCR-PRO65KM
K601	#1	23405484	MIRROR, 51WQG 993/720*550 T3
	#2	23405409	MIRROR, 57WL MIRROR57WL
	#3	23405415	MIRROR, 65WL MIRROR65WL
	#4	23405415	MIRROR, 65WL MIRROR65WL

Location No.	Parts No.	Description

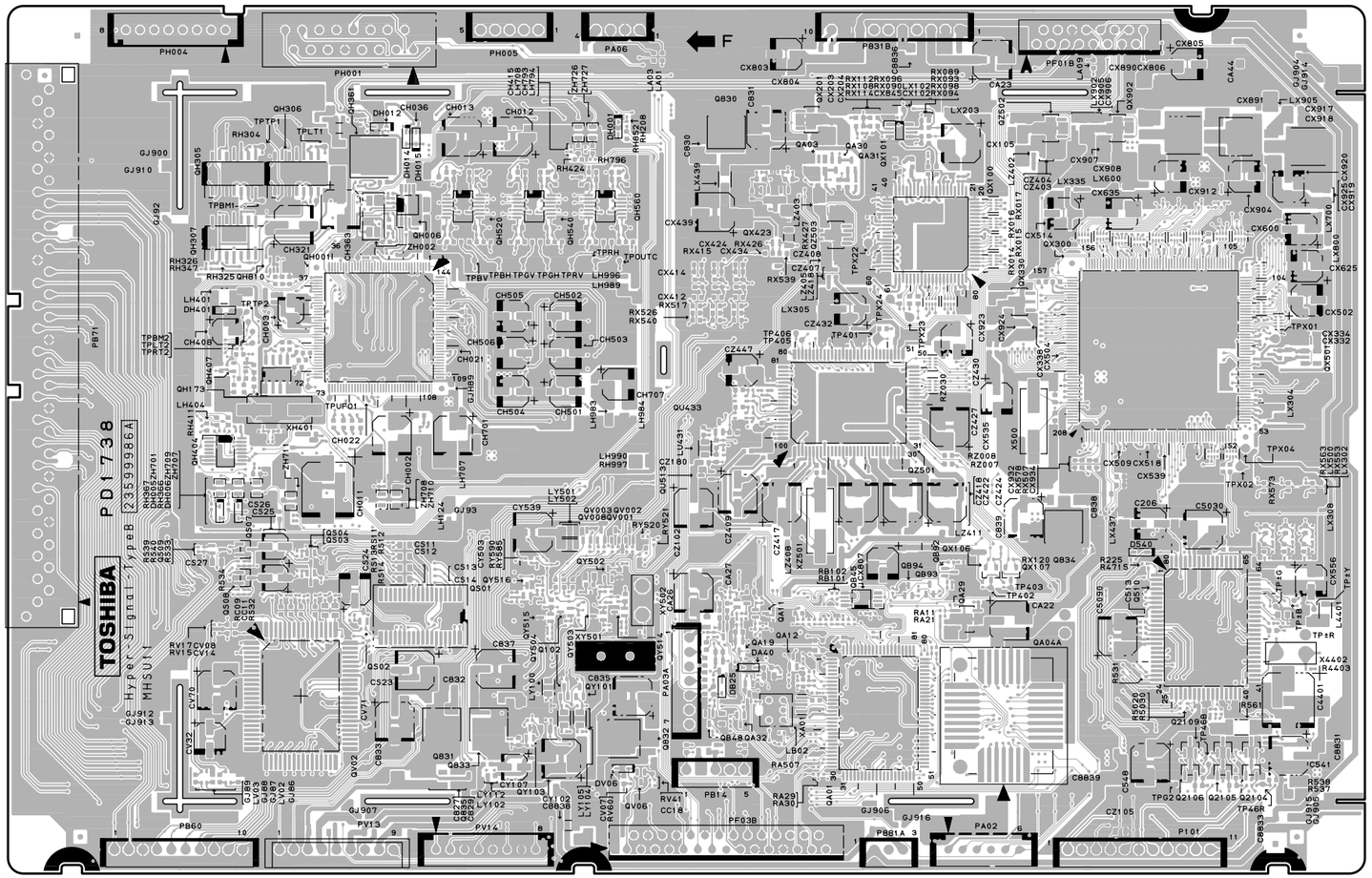
SCAN CONVERTER MODUL, MHSU12 (U001)

BOTTOM (FOIL) SIDE



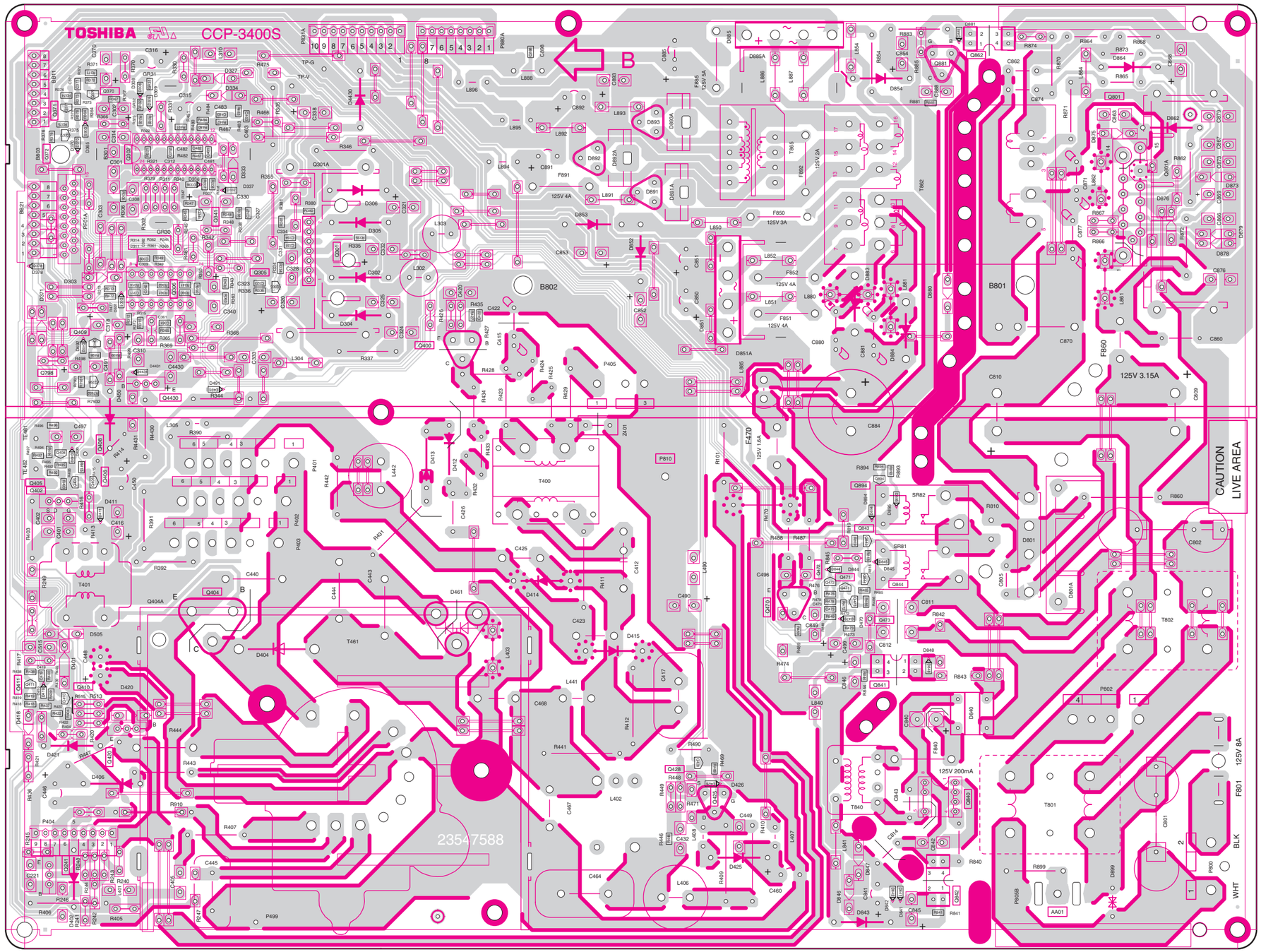
SCAN CONVERTER MODUL, MHSU12 (U001)

TOP (COMPONENT) SIDE



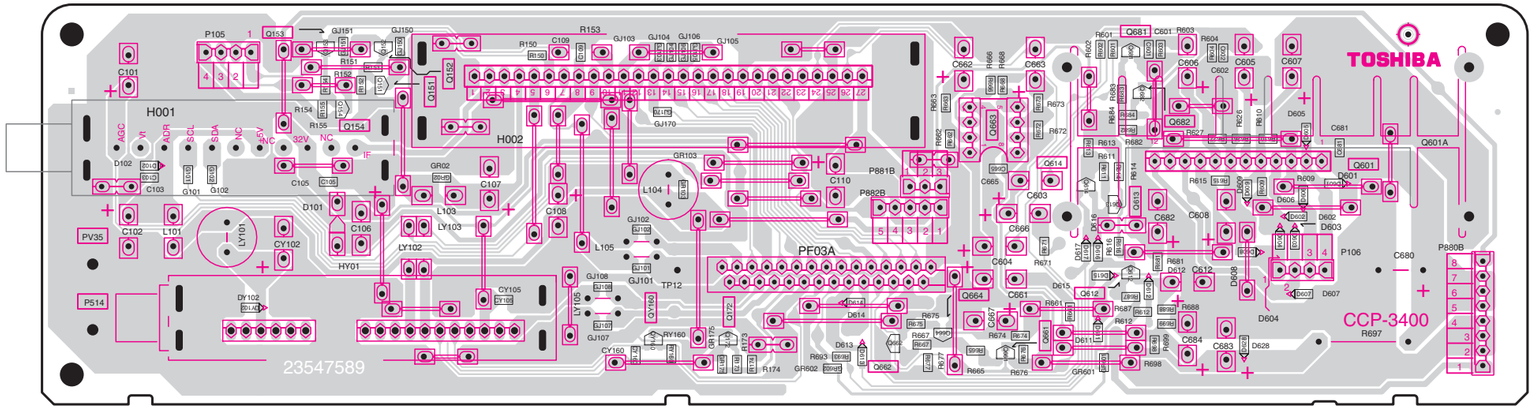
DEFPOWER BOARD PD2201A (U401)

BOTTOM (FOIL) SIDE



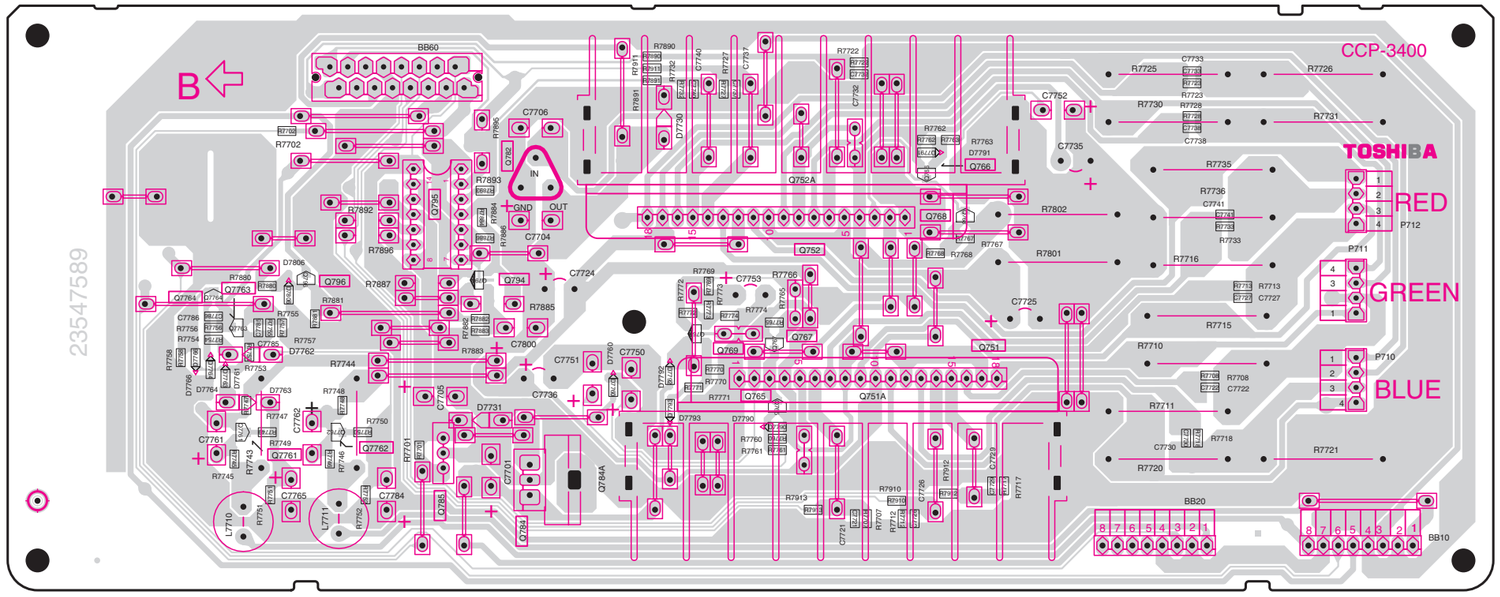
IF/AUDIO BOARD PD1731D2 (U601)

BOTTOM (FOIL) SIDE



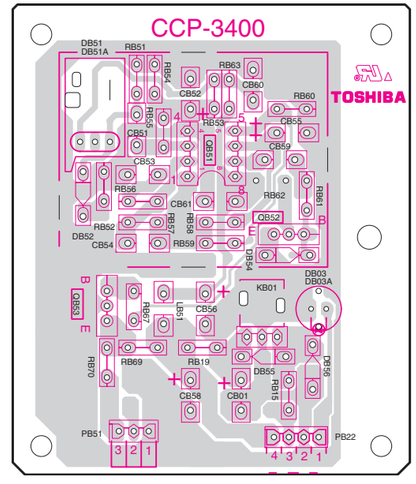
CONVER BOARD PD1731D1 (U711)

BOTTOM (FOIL) SIDE



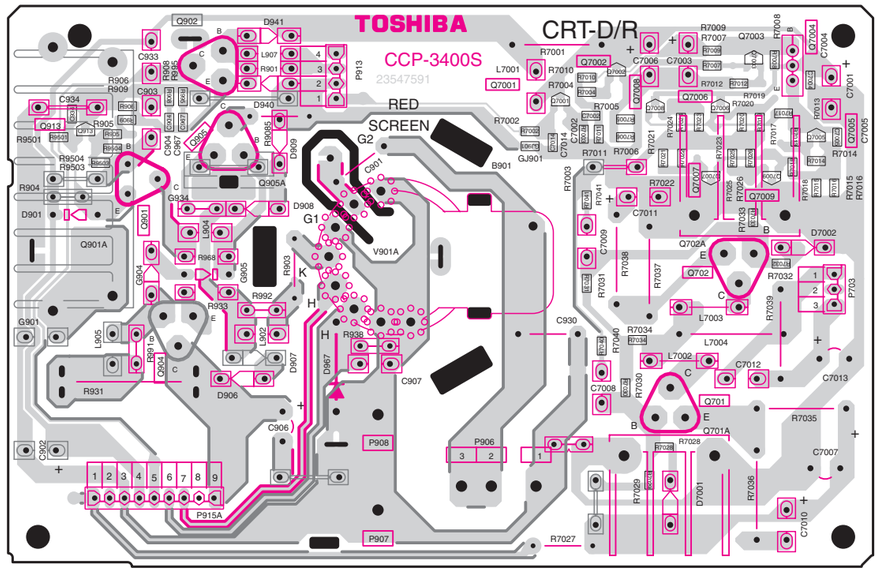
IR BLASTER BOARD PD1289 (E045Z)

BOTTOM (FOIL) SIDE



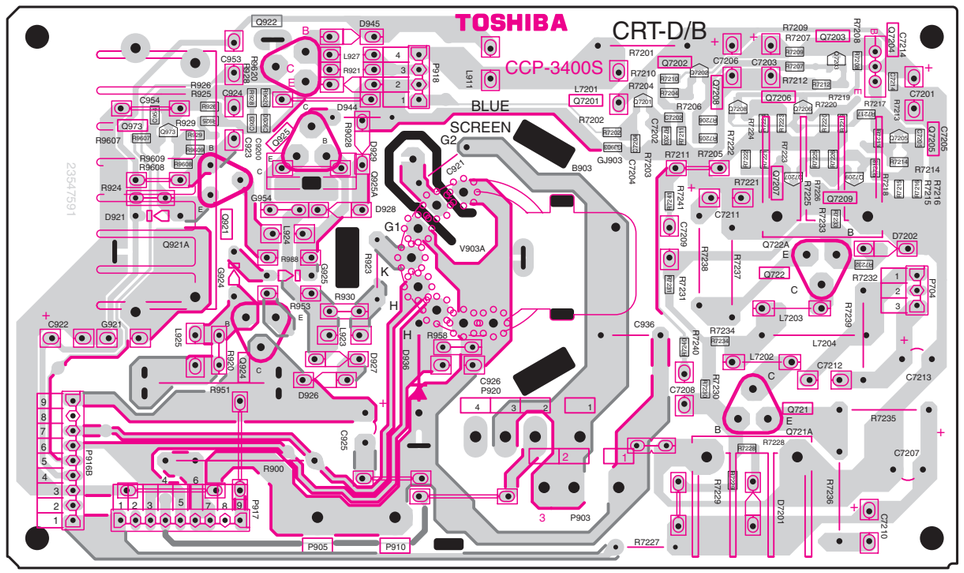
CRT/SVM/R BOARD PD1733G1 (E031Z)

BOTTOM (FOIL) SIDE



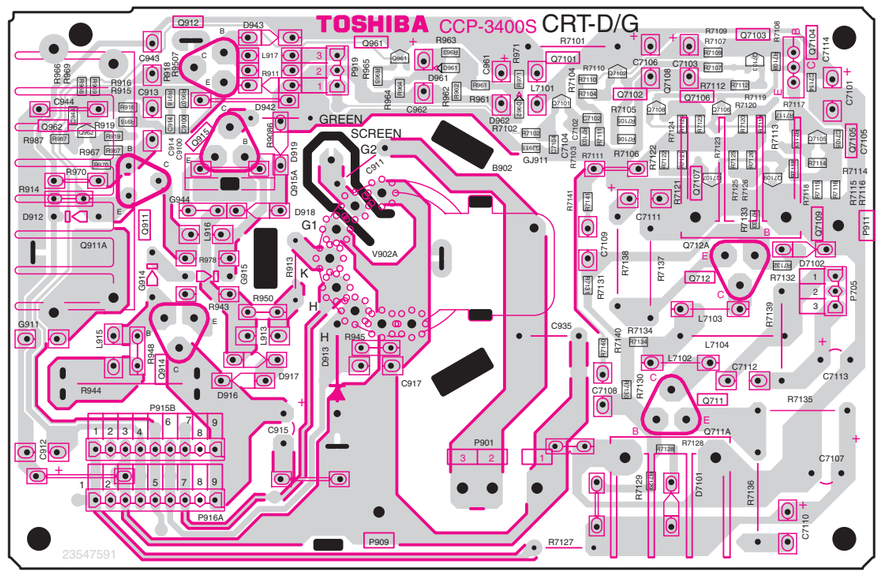
CRT/SVM/B BOARD PD1733G3 (E033Z)

BOTTOM (FOIL) SIDE



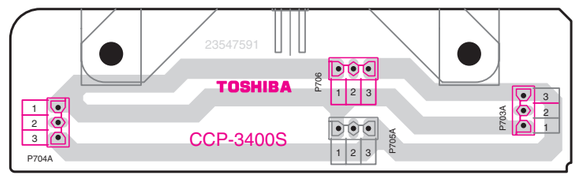
CRT/SVM/G BOARD PD1733G2 (E032Z)

BOTTOM (FOIL) SIDE



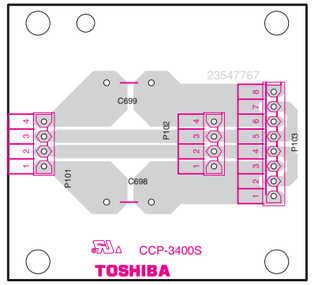
SVM/DIV BOARD PD1733G4 (E034Z)

BOTTOM (FOIL) SIDE



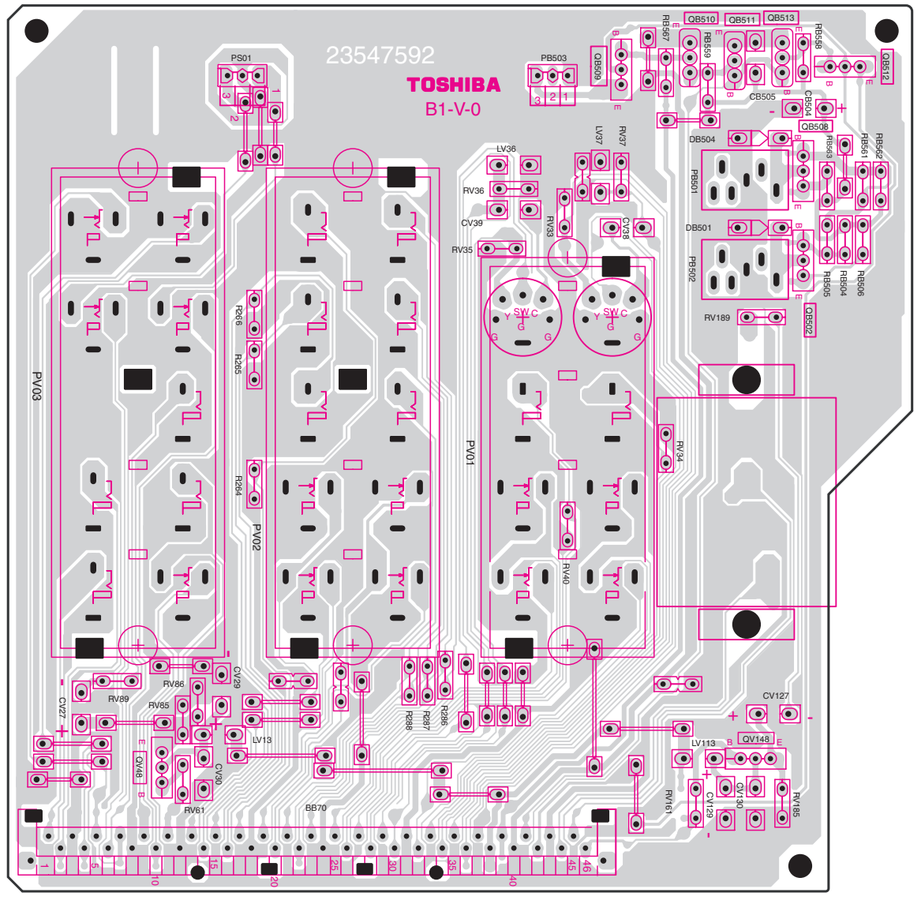
SPK/CAPA BOARD PD2065B (US01)

BOTTOM (FOIL) SIDE



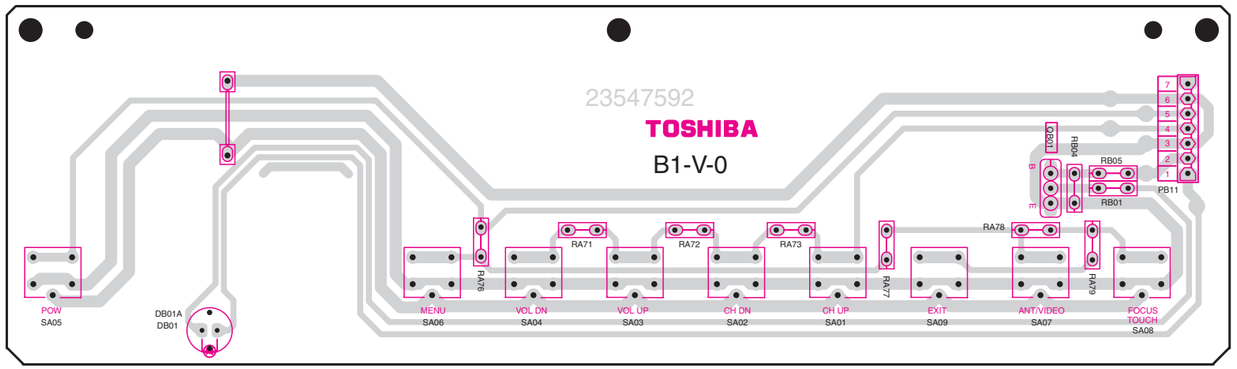
BACK/AV BOARD PD1735E1 (E021Z)

BOTTOM (FOIL) SIDE



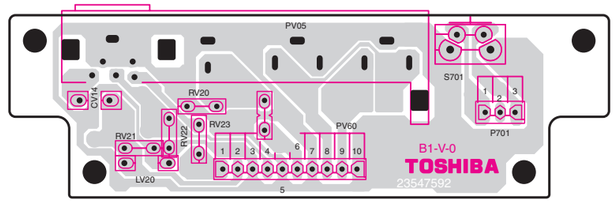
FRONT-CON BOARD PD1735E2 (E022Z)

BOTTOM (FOIL) SIDE



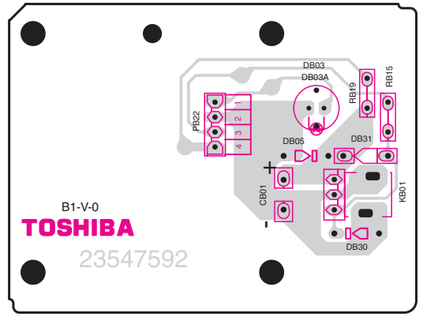
FRONT IN BOARD PD1735E3 (E023Z)

BOTTOM (FOIL) SIDE



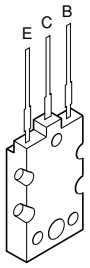
REMOTE BOARD PD1735E4 (E024Z)

BOTTOM (FOIL) SIDE

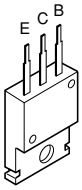


TERMINAL VIEW OF TRANSISTORS

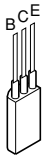
① 2SC5144
2SC5859



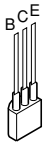
② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



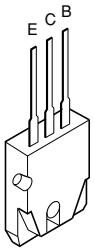
③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



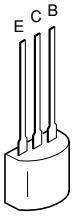
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



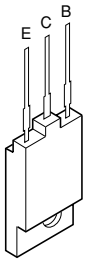
⑤ 2SA1788



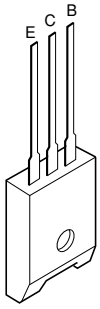
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SD2553
2SC5143



⑧ ON4409



SCHEMATIC DIAGRAM

MODEL : 51HC85/57HC85/65HC15/65HC85

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in F, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   Electolytic capacitor Mylar capacitor
3. The parts indicated with "⚠" have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage at 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

■ SCHEMATIC DIAGRAM STRUCTURE:

- SPK CONNECTOR Circuit 1/62
- DEF POWER Circuit
  - (1/3) [SHEET - 1/3] 2/62
  - (2/3) [SHEET - 2/3] 3/62
  - (3/3) [SHEET - 3/3] 4/62
- BACK/AV Circuit 5/62
- CONV/IF/AUDIO
  - (1/3) [SHEET - 1/3] 6/62
  - (2/3) [SHEET - 2/3] 7/62
  - (3/3) [SHEET - 3/3] 8/62
- CONVER OUT Circuit 9/62
- FRONT IN/CONT Circuit 10/62
- IR BLASTER Circuit 11/62
- CRT-D Circuit
  - (1/2) [SHEET - 1/2] 12/62
  - (2/2) [SHEET - 2/2] 13/62
- AV Circuit
  - (1/10) [SHEET - 1/10] 14/62
  - (2/10) [SHEET - 2/10] 15/62
  - (3/10) [SHEET - 3/10] 16/62
  - (4/10) [SHEET - 4/10] 17/62
  - (5/10) [SHEET - 5/10] 18/62
  - (6/10) [SHEET - 6/10] 19/62
  - (7/10) [SHEET - 7/10] 20/62
  - (8/10) [SHEET - 8/10] 21/62
  - (9/10) [SHEET - 9/10] 22/62
  - (10/10) [SHEET - 10/10] 23/62
- MICOM Circuit
  - HYPER SIGNAL
    - (1/10) [SHEET - 1/10] 24/62
    - (2/10) [SHEET - 2/10] 25/62
    - (3/10) [SHEET - 3/10] 26/62
    - (4/10) [SHEET - 4/10] 27/62
    - (5/10) [SHEET - 5/10] 28/62
    - (6/10) [SHEET - 6/10] 29/62
    - (7/10) [SHEET - 7/10] 30/62
    - (8/10) [SHEET - 8/10] 31/62
    - (9/10) [SHEET - 9/10] 32/62
    - (10/10) [SHEET - 10/10] 33/62
  - G-HYPER Circuit
    - (1/3) [SHEET - 1/3] 34/62
    - (2/3) [SHEET - 2/3] 35/62
    - (3/3) [SHEET - 3/3] 36/62
  - AD-CONVERTER Circuit
    - (A) [SHEET - 1/3] 37/62
    - (B) [SHEET - 2/3] 38/62
    - (C) [SHEET - 3/3] 39/62
  - GC-TC90A92A Circuit
    - (1/3) [SHEET - 1/3] 40/62
    - (2/3) [SHEET - 2/3] 41/62
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  - GC-REG Circuit 43/62
  - GNESIS Circuit
    - (1/3) [SHEET - 1/3] 44/62
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  - SDRAM Circuit 47/62
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    - (2/8) [SHEET - 2/8] 52/62
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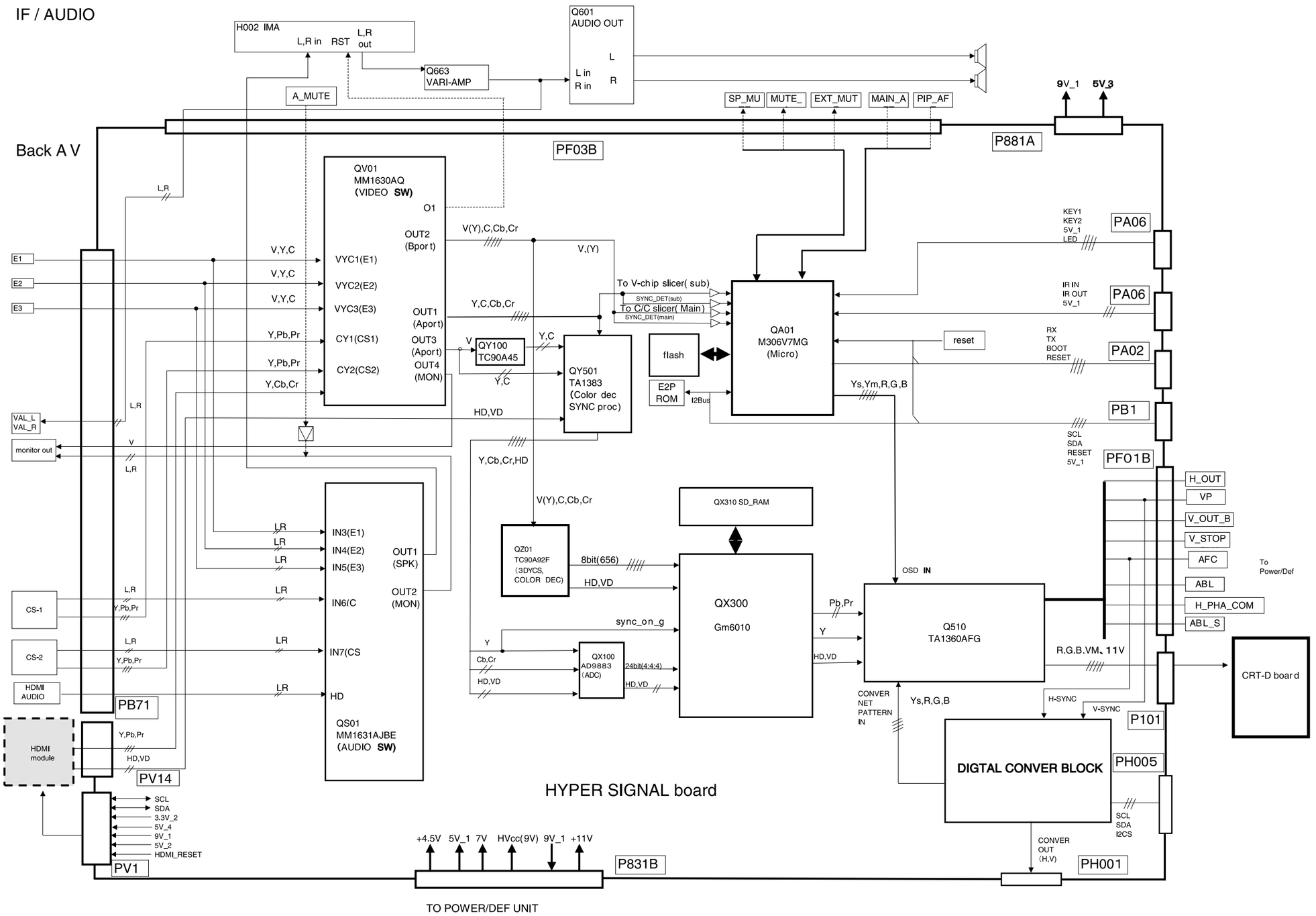
    - (4/8) [SHEET - 4/8] 54/62
    - (5/8) [SHEET - 5/8] 55/62
    - (6/8) [SHEET - 6/8] 56/62
    - (7/8) [SHEET - 7/8] 57/62
    - (8/8) [SHEET - 8/8] 58/62
  - CONVER-REG Circuit
    - (1/4) [SHEET - 1/4] 59/62
    - (2/4) [SHEET - 2/4] 60/62
    - (3/4) [SHEET - 3/4] 61/62
    - (4/4) [SHEET - 4/4] 62/62

CIRCUIT BLOCK DIAGRAM



TOSHIBA CORPORATION
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